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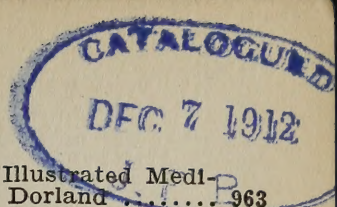
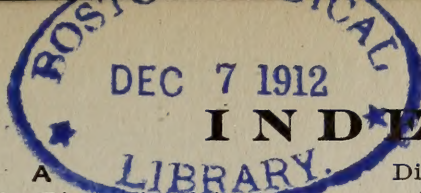












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## Phylogenetic Association in Relation to Certain Medical Problems.

By G. W. CRILE, M. D., Prof. of Surgery, Western Reserve University;  
H. G. SLOAN, M. D., and J. B. AUSTIN, M. D.  
Cleveland.

From the H. K. Cushing Laboratory of Experimental Medicine, Western Reserve University, Cleveland.

### INTRODUCTION.

G. W. Crile.

Before proceeding to the presentation of the several papers, I desire on behalf of my colleagues and myself to acknowledge the great assistance in the way of suggestion and criticism as follows: to Prof. C. B. Davenport, of the Carnegie Institution, for reading the manuscript and criticising its biologic application; to Prof. C. S. Sherrington for criticising the physiologic features; to Dr M. L. Menten for many valuable suggestions especially along the lines of microchemistry; to Dr G. N. Stewart who read and criticised the original manuscript and who suggested the parallel mounting and staining of sections; to Dr W. T. Howard who made various suggestions, to Dr D. Dolley as to the technic of neurocytologic studies while Dr Dolley was engaged with me in my laboratory in studying the nerve cells in surgical shock; to Dr D. Marine for many suggestions as to goiter; to Dr J. J. R. MacLeod especially for his suggestion of using the "spinal" dog to control other experiments; to Dr E. F. Cushing and to Dr T. Sollman for reading and criticising

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*Read before the Experimental Medicine Section of the Academy of Medicine of Cleveland, Nov. 11, 1910. The greater part of this paper is the "Ether Day Address" (Crile), delivered at the Massachusetts General Hospital Oct. 15, 1910, and published in the Boston Medical and Surgical Journal.*



the manuscript; especially to Dr W. E. Lower for many valuable clinical suggestions; to Miss A. Tashjian for her originality and skill in making the illustrations. While making these acknowledgments of assistance which has facilitated our work, we commit no one to an endorsement of either our data or our conclusions.

It is the purpose of this presentation to offer evidence that, underlying medicine, there are certain great natural laws which show that disease as well as health is a part of the web of life; that every phenomenon of disease fits precisely into a general plan, and that like a difficult picture puzzle if we persist we can make up the completed picture of disease. Tonight we shall try to show that such an end is attainable but shall of course not presume to do more than make suggestions for investigation. The painstaking labors required in working out the details of the experiments were all performed by my associates, while I played the more agreeable rôle of playing with the picture puzzle.

#### EXPERIMENTAL DATA.

H. G. Sloan.

A dog's spinal cord was divided between the fifth and sixth cervical vertebrae. After such an operation many dogs die during the next 36 hours with a low blood pressure. In order to obviate this fall, the animal was immediately transfused from another dog. Ten weeks later his scratch reflex had returned and he was in good condition. Under ether anesthesia,  $\frac{1}{4}$  gr. of morphin having been previously given hypodermically, a blood pressure tracing was started. We noticed during the experiment that the dog required much less ether than others. We then attempted to shock him by the usual measures, i. e., opening the abdomen and rubbing the abdominal walls and viscera with gauze. After four hours of continuous trauma the blood pressure was 16 mm. lower than at the beginning of the experiment. The respirations varied from 42 at the start to 25 at the end of the experiment. The pulse rate at the beginning was 115 and at the end 77. Peritoneal rubbing for two or three minutes caused a rise in the blood pressure which returned to normal a minute or so after the manipulation had ceased. In a large series of experiments we have never seen a normal dog that could endure an equal amount of trauma. This dog was not of



a robust type but a common mongrel. Although we did only one such experiment we can say that this dog was protected from shock-producing trauma.

Trauma of the cerebrum: In these experiments we burned the brain of two rabbits and two dogs: also in one dog we destroyed part of one half the cerebrum mechanically.

In the dogs the skull was cut away for 3 cm. over one cerebral hemisphere. Then the dura was carefully clipped out flush with the opening in the skull and the cut edges protected by cotton and wax to stop oozing from the bone. There was always an immediate fall in blood pressure with an acceleration of the pulse rate due to the blood loss at the time of the operation. We allowed a half hour of quiet in order that the blood pressure find a stable level and then proceeded to burn the brain substance with a thermo-cautery. This caused no fall in blood pressure or pulse rate immediately, or for one hour later, when the dogs were killed. The respiration did not vary, except in one case as we were burning through the basal nuclei, when we noted an acceleration of five to the minute, the normal rhythm was resumed, however, when the cautery was withdrawn. The burning caused no muscular movements. In the rabbits the skull opening measured about  $1\frac{1}{2}$  cm. They showed the same results as the dogs. There was no fall in blood pressure or change in pulse rate or respiration, after the fall due to operative hemorrhage. In the dogs the blood pressure was in each case 8 mm. higher one hour after the burning and trauma than during this procedure.

In the case of the dog whose cerebrum we destroyed with a revolving wire brush, there was a hemorrhage from the cerebral vessels of 50 c.c. at the time of the trauma. Immediately following this there was a fall in blood pressure with an acceleration of pulse rate. This quickly adjusted itself and for the next half hour there was no further variation in blood pressure except for a slight rise. The pulse rate and respiration remained constant. The dog was then killed.

From this group of experiments we may draw the conclusion that trauma of the cerebrum, excluding the meninges, is not shock-producing.

Comparative shock: In order to ascertain the relative susceptibility of certain animals to shock we undertook the following experiments, in which we followed the routine laboratory



methods of producing shock: namely, under ether anesthesia we traumatized the peritoneum and viscera. Blood pressure tracings were made on a drum.

Two skunks: In the first one during the first two hours of the tracing the blood pressure fell 10 mm. The open abdominal cavity might well account for this change. During the fourth hour of continuous trauma the blood pressure fell to 41, whereas at the start it was 80; pulse rate decreased to 76, whereas at the start it was 143. Death occurred after five hours of manipulation. The body temperature fell  $14^{\circ}$  C. during the experiment. We have never seen any other animal endure trauma so long or well. A second skunk whose body temperature we kept constant by artificial means died after three hours of trauma. Sensory nerve stimulation in these animals caused a well marked blood pressure rise up until one-half hour before death. This is in contrast to the dog at the same stage in which usually no rise is noted. These little animals, considering their size and poor physique, showed remarkable resistance to shock in comparison with the other laboratory animals.

Ten dogs: We were able to kill three in from  $2\frac{1}{2}$  hours to  $3\frac{1}{2}$  hours, depending on their physique and physical condition. But dogs are the most resistant.

Two geese: It took  $2\frac{1}{2}$  hours to kill each. The goose required a large amount of ether to induce anesthesia. We gave them no morphin. There is very little peritoneal cavity to traumatize. There was no appreciable shock during the first  $1\frac{1}{2}$  hours. One gained the idea that they were quite resistant to shock during this time. Trauma slowed the pulse rate and gave a larger pulse wave during the first  $1\frac{1}{2}$  hours. Sensory nerve stimulation caused a rise in blood pressure a half hour before exitus.

One sheep: This, a young full grown wether, was killed in  $2\frac{3}{4}$  hours. Transient trauma caused at first slowing of the pulse and larger pulse excursions only to return to normal one minute after the trauma ceased.

One pig: Killed in  $2\frac{1}{2}$  hours; he showed no variation from a dog. Very susceptible to ether.

One cat: Died in  $1\frac{3}{4}$  hours.

Three rabbits: Average time of death  $\frac{3}{4}$  hour. Rabbits showed an immediate and increasing susceptibility. This, considering their physical development which corresponded to the



physique of the skunks was in marked contrast to the latter.

Trauma of the upper half of the abdomen and diaphragmatic reflection of the peritoneum caused greater shock than manipulation of the lower abdomen.

The conclusion seems to be that sturdy physical development plays a rôle in the resistance to shock in animals of the same type. There is another factor in the resistance which cannot be explained on this basis: notably in the skunk and animals protected from physical injury by some defense mechanism, e. g. the odor of the skunk and the shell of the turtle. Turtles are notoriously hard to kill by trauma. The small number of experiments on the various species, excepting the dog, precludes drawing any conclusions.

Fright experiments: The rabbit was selected because of its timorous nature and fear of dogs. For comparative work we used rabbits of the same litter. The fear of impending death is the most powerful of all in its effect. To such fear we subjected the rabbits but in such a manner that they received no physical injury, and made no exertion.

We found that fox terriers were the most energetic dogs for the experiment. Sometimes two dogs were used at once, and again in relays when a long period of fright was desired. A half hour's seance usually tired the dog completely; during which time his temperature frequently rose  $3^{\circ}$  C. One could readily see how the chase was recapitulated in the dog by his tense eagerness, bristling hair and savage growls.

The rabbits' temperature usually rose to its highest point in 15 to 20 minutes; at times going up  $3^{\circ}$  C. At other times the temperature remained constant during the fright and again it fell  $1^{\circ}$  C. There was, however, no constancy in this phenomenon. In order to control the factor of the rabbits' increase in temperature on the brain cells, we placed three rabbits in an incubator regulated to  $40^{\circ}$  C., the highest any rabbit's temperature rose during fright. These rabbits were incubated one hour and then killed at once as controls.

In two rabbits deprived of their thyroids two weeks before, the temperature fell during the fright; in one case  $2^{\circ}$  and in the other  $5^{\circ}$ . Respiration was accelerated in all the rabbits that were frightened; sometimes reaching 120 to 140 to the minute. At the end of a half hour's fright the rabbits lay completely exhausted—flat on the ground, head and legs extended. The



only efforts made were those of respiration. The average blood pressure of seven normal rabbits was 76 mm. Hg. while the average of two frightened rabbits was 92 mm. Hg.

In most instances the rabbits were killed at once but some were permitted to recover. The interval between the end of frightening and death varied from 45 minutes to six hours. All rabbits were killed with minimal trauma. Two rabbits were frightened every day for two weeks, their seance lasting for 15 minutes daily. They were killed 24 hours after the last fright. These repeatedly scared rabbits soon became used to the fright, and we frequently found them an hour later with their coats re-arranged and seemingly behaving as other normal rabbits.

In the brain sections prepared by Dr Austin one can see how fright causes a marked change in the cells of the entire central nervous system.

#### THE HISTOLOGICAL CHANGES IN THE NERVOUS SYSTEM.

J. B. Austin.

The technic employed in these investigations was as follows: All specimens from animals were taken while perfectly fresh, many even before all signs of life were extinct. They were at once placed in a fixative solution, either alcohol, picrosulphuric acid, or a saturated solution of corrosive sublimate with 10% formalin. In the later experiments the last named alone was used on account of its causing less shrinkage and giving uniformly satisfactory results. In every case blocks of tissues were removed from the motor cortex, the cerebellum, the medulla in the region of the olivary bodies, and the cervical and lumbar cord with their attached ganglia. In the experiments upon frightened rabbits blocks were also taken from the frontal lobes.

All specimens from human beings were obtained as fresh as possible. Among those secured were some from new-born children, old people, and from patients dying from various causes such as cerebral hemorrhage, septicemia, exophthalmic goiter, etc. From a traumatic case, so-called normal cerebral tissue was obtained. Fixation was the same as with animals.

All tissue was infiltrated with soft paraffin, embedded in hard paraffin, cut with a rotary microtome into sections five micra thick, and stained on the slides. Nissel's old method



was used almost entirely for staining, although occasionally iron-hematoxylin or borax-carmin was used as a control. The results could be interpreted with equal facility, whichever method was used.

In order to avoid, as far as possible, errors due to variation in technic at any of the many stages of the process of preparation, a normal section from a corresponding region of the same kind of animal was mounted and stained on each slide with the pathologic section. This permitted easy comparison.

Method of study: From the first it was found necessary to classify into groups the degrees of change in the nerve cells. This was always done according to the arbitrary classification of D. H. Dolley. It was not sufficient to look at a section and note the qualitative changes, as alone they might be misleading,—careful quantitative observations were also made. Like the study of blood cells this problem resolved itself into differential counts of nerve cells.

The following descriptions are based on changes which occurred in the chromatin of all parts of the cell, and changes in the structure of cell wall, nucleus, and nucleolus.

Shock: With the animal under complete anesthesia, shock was produced by inflicting trauma. The principal changes were found in the cerebrum and cerebellum. In the cord the changes were slight, consisting in disintegration and reduction of the chromatin. In the large cells of the medulla the changes were still less, but in the small cells the loss of chromatin was usually marked.

Comparing the changes in the brain cells of two series of experiments on dogs—one series under ether, the other under nitrous oxid, the trauma in the two being approximately equal—the following differences in the damage to the brain were noted:

In all the dogs reduced to shock while under ether, the cerebrum was profoundly affected. There were few hyperchromatic cells, but there was a large percentage of completely exhausted or broken down cells. After using nitrous oxid and oxygen to produce anesthesia, more hyperchromatic and fewer exhausted cells were noted in corresponding areas. In the cerebellum the same results were found. Results of differential counts of 100 Purkinje cells were as follows:

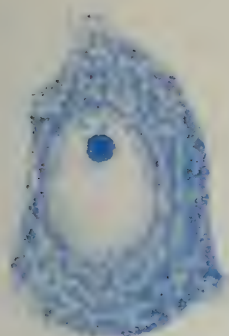


	Hyperchromatic cells and cells in Stage I.	Exhausted Cells.
Normal dogs, average of all counts made .....	75%	0%
Ether, six experiments .....	35%	20%
Nitrous oxid and oxygen, 13 experiments .....	55%	5%

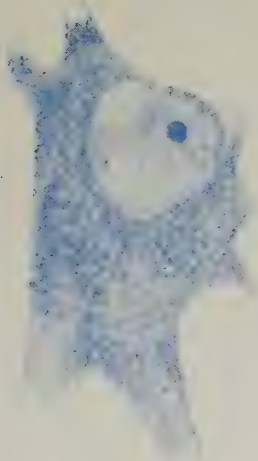
The blood pressure always was maintained at or above the normal level. The counts in the spinal dog and the opposite hemisphere in those dogs in which the cortex was traumatized were found to be practically normal. In the spinal dog there were 80% of the cells hyperchromatic and in Stage II, and only 1% in the exhausted stages.

Fright: Twenty-five rabbits were used in these experiments. Control animals from the same litter were always killed and the parallel technic carried out in the usual way. In some instances a control rabbit was also placed in the incubator at a temperature of 40° C. for an hour and sections from it were mounted on the same slide with those from frightened rabbits either killed immediately, or allowed to recover. A series of 10 experiments of frightened rabbits killed at once, of five frightened rabbits allowed to recover for two hours or more, of seven normal rabbits and of two rabbits subjected to repeated daily fright for some days have been studied and 100 Purkinje cells in each experiment have been classified and the averages computed. In all cases in which the frightened rabbit was killed at once after the fright there is shown a definite initial hyperchromatism. This was not the case in the rabbit which had been placed in the incubator. In no case did the lowest percentage of hyperchromatic cells (35%) in the frightened rabbits reach as low a figure as the highest percentage (30%) of hyperchromatic cells in the normal rabbits. In animals allowed to recover at least two hours this initial hyperchromatism had disappeared and the percentage of hyperchromatic cells was 22%, or about normal. The exhausted cells, however, had increased from about 1% to an average of 9%. If allowed to recover six hours the hyperchromatic cells were still less in number, having decreased to less than normal (18%), but the number of exhausted cells

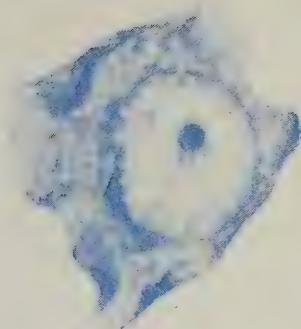




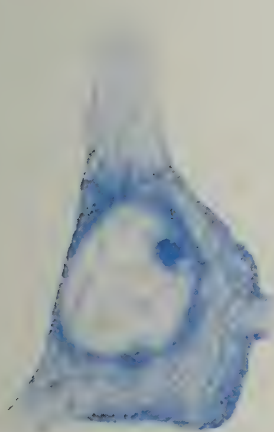
1. PYRAMIDAL CELL FROM THE CORTEX.  
Normal cell.



2. Experiment No. 44. Chorea Dog.  
LARGE PYRAMIDAL CELL OF CORTEX.  
Chromatin granules in a fine state of division. Nucleus enlarged and irregular.



3. Experiment No. 28. Shock.  
LARGE PYRAMIDAL CELL FROM CORTEX.  
Cell much shrunken. The nucleus plasma relation is altered and the nuclear membrane is ruptured in several places.



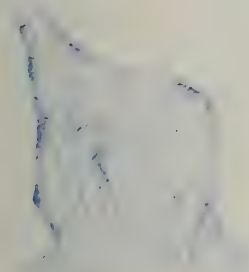
4. Experiment No. 28. Shock.  
LARGE PYRAMIDAL CELL FROM CORTEX.  
Showing beginning change in the Nucleolus. It is slightly less deeply stained and beginning to split up.



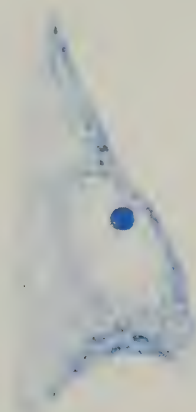
5. Experiment No. 28. Shock.  
LARGE PYRAMIDAL CELL FROM THE CORTEX.  
Nuclear membrane is badly broken and the nucleolus has split up.



6. Experiment No. 28. Shock.  
LARGE PYRAMIDAL CELL FROM THE CORTEX.  
Very little chromatin in the cell and only the partial outline of the nucleus remains.



7. Experiment No. 28. Shock.  
LARGE PYRAMIDAL CELL FROM THE CORTEX.  
The last stage in degeneration of the cell. Only a network present to recall the former site of the cell.



8. PYRAMIDAL CELL FROM THE CORTEX.  
Exophthalmic goitre.



9. PYRAMIDAL CELL FROM THE CORTEX.  
Exophthalmic goitre.







had not increased. The following table shows the comparisons:

	Hyperchromatic cells.	Broken down cells.
Normal (seven rabbits).....	24%	1%
Heat (one rabbit).....	23%	1%
Fright (10 rabbits, killed at once)...	53.5%	1%
Fright (five rabbits, recovered two to six hours) .....	22%	9%
Fright (two rabbits, recovered six hours) .....	16%	8%
Repeated fright (two rabbits, 24 hour recovery) .....	21%	10%

A rabbit frightened for 10 minutes had as many hyperchromatic cells as one frightened from one-half to one hour. No definite interval of beginning recovery could be made out. A rabbit after a six hour period of recovery had only one-half as many hyperchromatic cells as one after two and one-half hours. Between these different times of recovery there was no difference in the number of exhausted cells.

Exophthalmic goiter: In a case of exophthalmic goiter the specimens were obtained at autopsy from a woman, 23 years of age, who had thyroid enlargement for two years. The patient had had fever for three weeks before her death. There was no operation and no complicating disease. At the autopsy, two hours after death, there were found pneumococci in a culture taken from the spleen. The body was much emaciated. Sections were taken from the cerebellum, cerebrum, medulla, and cervical cord. In the cerebellum there were no hyperchromatic cells present, and the percentage of broken down cells was very large (31%). As a whole the loss of chromatin was striking in almost all of the Purkinje cells. This was shown by the very large number of cells in Stages III to VI, inclusive (43%). In Stage II about the normal number of cells was found. The details of the cell count are as follows:

Hyperchromatic Cells	Stage 2	3	4	5	6	7	8	9	10
0%	26%	11%	12%	13%	7%	7%	9%	5%	10%
26%		43%				31%			

In the cerebrum the sections did not stain well. There were no hyperchromatic cells. Almost all of the large granules had disappeared from the large and small pyramidal cells. In small amount chromatin in diffuse form was usually present. The nucleolus was well stained in many cells, and in nearly all there was disturbance of the nucleus-plasma relationship.



In the medulla the large motor cells had lost a great deal of chromatin, while the remaining granules were in a moderately fine state of subdivision. The nucleus was also enlarged in proportion to the size of the cell. The cells of the olivary body were less affected. Owing to the presence of a larger amount of finely divided chromatin they stained deeper, as a whole, than usual.

In the pons the pontine nuclei showed the same general changes such as were seen in the large motor cells of the medulla. These changes consisted mainly of a loss of chromatin and disturbance of the nucleus-plasma relationship. The loss of chromatin was not complete, as a few large granules were usually left.

In the cervical cord no marked changes were found. The chromatin was of normal appearance, well stained, made up of large granules, and everywhere present in the cell. The motor cells appeared to be slightly shrunken.

#### ARGUMENT.

G. W. Crile.

Not everyone will find himself in harmony with this paper. First: there are those who will question the correctness and the sufficiency of our clinical and experimental data. To these I would rejoin that our experimental foundation is not alone the work reported tonight but that previously published by me in several monographs as well\*. As to the correctness of the clinical observations there can be no question, and this can readily be verified by anyone. I should like here to add that the clinician is the final judge of the value of the work of the laboratory. Secondly: there are those who will doubt the correct application of the biologic laws involved. To these I would reply that the biologic aspect of this paper has been reviewed by one of the most eminent American biologists, who found no objection to the use made of natural selection, phylogeny and association. There are those who may think that the application of the doctrine of evolution is made to include too much. To these I would reply that evolution accounts for all organic phenomena or none. Evolution does not divide responsibility. Finally: there

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\**Surgical Shock.* J. B. Lippincott.  
*Surgery of the Respiratory System.* J. B. Lippincott.  
*Problems Relating to Surgical Operations.* J. B. Lippincott.  
*Hemorrhage and Transfusion.* D. Appleton & Co.  
*Blood Pressure in Surgery.* J. B. Lippincott & Co.

are those who believe that disease originated from some source other than nature—that it was, so to speak, created separately and sent into the world. To these creationists there can be no reply for nothing but sentiment would appeal.

When a barefoot boy steps on a sharp stone there is an immediate discharge of nervous energy in his effort at escape from the wounding stone. This is not a voluntary act. It is not due to his own personal experience (i. e. his ontogeny), but is due to the experience of his progenitors during the vast periods of time required for the evolution of the species to which he belongs, i. e. his phylogeny. The wounding stone made an impression upon the nerve receptors in the foot similar to the innumerable injuries which gave origin to this nerve mechanism itself during the boy's vast phylogenetic or ancestral experience. The stone supplied the phylogenetic association and the appropriate discharge of nervous energy automatically followed. If the sole of the foot is repeatedly bruised or crushed by the stone, shock may be produced. If the stone be only lightly applied then there is also a discharge of nervous energy from the sensation of tickling. The body has had implanted within it in a similar manner other mechanisms of ancestral or phylogenetic origin whose purpose is the discharge of nervous energy for the good of the individual. In this paper, I shall discuss the origin and mode of action of some of these mechanisms including certain phases of anesthesia.

The word anesthesia,—meaning *without feeling*,—describes accurately the effect of ether in anesthetic dosage. Although no pain is felt in operations under inhalation anesthesia, the *nerve impulses* set up by a surgical operation still reach the brain. We know that not every portion of the brain is fully anesthetized, since surgical anesthesia does not kill. The question then is,—what effect has trauma under surgical anesthesia upon the part of the brain *that remains awake*? If, in surgical anesthesia, the traumatic impulses cause an excitation of those wide-awake cells, are the remainder of the cells of the brain, despite anesthesia, influenced in any way? If influenced, they are prevented by the anesthesia from expressing the same in conscious perception or in muscular action. Whether the *anesthetized* cells are influenced or not must be determined by noting the physiologic function after anesthesia has worn off, and in animals by an examination of the brain cells as well. It has long been known that the vaso-



motor, the cardiac and the respiratory centers discharge energy in response to traumatic stimuli applied to various sensitive regions of the body during surgical anesthesia. If the trauma is sufficient, exhaustion of the entire brain is observed after the effect of the anesthetic is worn off,—that is to say, despite the complete paralysis of voluntary motion and the loss of consciousness due to ether, the traumatic impulses that are known to reach the *awake* centers in the medulla, also reach and influence every other part of the brain. As to whether or not the consequent functional depression and the morphologic alterations seen in the brain cells may be due to the low blood pressure which follows excessive trauma is answered by the following experiments, viz: the circulation of animals was first rendered static by overtransfusion, and was controlled by a continuous blood pressure record on a drum, the factor of anemia was wholly excluded during the application of the trauma and during the removal of a specimen of brain tissue for histologic study. In every such instance morphologic changes in the cells of all parts of the brain were found, but it required more trauma to produce *equal* morphologic changes in animals protected against low blood pressure than in animals whose blood pressure gradually declined in the course of the experiments.

In the cortex and in the cerebellum, the changes in the brain cells were in every instance more marked than in the medulla. There is also strong *negative* evidence that traumatic impulses are not excluded by ether anesthesia from the part of the brain that is apparently asleep. This evidence is as follows:

If the factor of fear be excluded, and if in addition the traumatic impulses are prevented from reaching the brain by cocaïn blocking, then, despite the intensity or the duration of the trauma within the zone so blocked, there follows no exhaustion after the effect of the anesthetic disappears and no morphologic changes are noted in the brain cells. A still further negative evidence that inhalation anesthesia offers little or no protection to the brain cells from trauma is derived from the following experiment: A dog whose spinal cord had been divided at the level of the first dorsal segment, and who was then kept in good condition for two months, showed a recovery of the spinal reflexes, such as the scratch reflex, etc. This animal is known as a "spinal" dog. Now, in this animal the abdomen and hind extremities have no direct nerve connection with the brain.

In such a dog a continuous severe trauma of the abdominal viscera and of the hind extremities lasting four hours caused not the slightest change in either the circulation or in the respiration, and no microscopic alteration of the brain cells. Judging from a large number of experiments on *normal* dogs under ether, such an amount of trauma would have caused not only a complete physiologic exhaustion of the brain but also morphologic alterations of all of the brain cells and physical destruction of many. We must therefore conclude that, although ether anesthesia produces unconsciousness, it *apparently protects none of the brain cells* against exhaustion from the trauma of surgical operations—ether is, so to speak, but a veneer. Under nitrous oxid anesthesia there is approximately only one-fourth the exhaustion on equal trauma as under ether; either nitrous oxid protects or ether predisposes to exhaustion under trauma. With this as a point of departure we will inquire into the cause of this exhaustion of the brain cells.

*On the Cause of the Exhaustion of the Brain Cells from Trauma of Various Parts of the Body under Inhalation Anesthesia.*

Numerous experiments on animals upon the effect of ether anesthesia per se, i. e., ether anesthesia without trauma, showed that although certain changes were seen there was neither the characteristic physiologic exhaustion after the anesthesia had worn off nor were there seen the characteristic changes in the brain cells. Turning to trauma, in a study of the behavior of individuals as a whole under deep and under light anesthesia, we at once found the cue to the discharge of energy, the consequent physiologic exhaustion and the morphologic changes in the brain cells.

If, in the course of abdominal operations, rough manipulation of the parietal peritoneum is made, there is frequently observed a marked increase in the respiratory rate and an increase in the expiratory force, even to the extent of an audible expiratory groan. Under light ether anesthesia severe manipulation of the peritoneum often causes such vigorous contractions of the abdominal muscles that the operator is greatly hindered in his work.

Among the unconscious responses to trauma under ether anesthesia are purposeless moving, withdrawing of the injured part, and if the anesthesia is sufficiently light and the trauma sufficiently strong, there may be an effort directed toward escape



from the injury. In injury under ether anesthesia every grade of response may be seen, from the slightest change in the respiration or in the blood pressure to a vigorous defensive struggle. As to the purpose of these subconscious movements in response to injury, there can be no doubt,—*they are efforts at escape from the injury,—an unconscious reactive opposition.*

Can anyone picture the actual result of a formidable abdominal operation extending over a period of half an hour or more in an unanesthetized human patient if extensive adhesions are broken up, or if a large tumor is dislodged from its bed? In such a case would not the nervous system discharge its energy to the utmost in efforts to escape from the injury and would the patient not suffer complete exhaustion? If the traumata, under inhalation anesthesia, be sufficiently strong and repeated in sufficient numbers, the brain cells will finally be deprived of their dischargeable nervous energy and become exhausted just as exhaustion follows a strenuous and too prolonged muscular exertion; for example, such as is seen in endurance tests. Whether the nerve energy of the brain is discharged by injury under anesthesia, or whether by ordinary muscular exertion, identical morphologic changes are seen in the nerve cells. In shock from injury, in exhaustion from overwork (Hodge and Dolley) and in exhaustion from pure fear, the general functional weakness is similar—in each a certain length of time is required to effect recovery and in each there are morphologic changes in the brain cells. It is quite clear that in each of these cases the altered function and form of the brain cells are due to an *excessive discharge of nervous energy*. This brings us to the next question, viz., what determines the discharge of energy from trauma with or without inhalation anesthesia?

*On the Cause of the Discharge of Nervous Energy from Trauma in Animals under Inhalation Anesthesia as well as in the Normal State with Special Reference to Medical Problems.*

I looked into this problem from many viewpoints and there seemed to be no solution, until it occurred to me to seek the explanation in certain of the postulates which make up the doctrine of evolution. I realize fully the difficulty and the danger in attempting to reach the generalization which I shall make later and in the hypothesis I shall propose. There is, of course, no direct final proof of the truth of even the doctrine of evolution. It is idle to consider any experimental research into the

cause of phenomena that have by natural selection required millions of years to develop. Nature has made the experiments on a world-wide scale; the data are before us for interpretation. Darwin could do no more than collect all available facts and then frame a hypothesis that best harmonized the facts. Sherrington, that masterly physiologist, in his volume entitled "The Integrative Action of the Nervous System," shows clearly how the central nervous system was built up in the process of evolution. Sherrington has made free use of Darwin's doctrine in explaining physiologic functions just as anatomists have extensively utilized it in the explanation of the genesis of anatomic forms. I will assume, therefore, that the discharge of nervous energy is accomplished by the application of the law of inheritance and association and that this hypothesis will explain many clinical phenomena. I shall present such evidence in favor of this hypothesis as time and my limitations will admit, after which I shall point out certain clinical facts that may be explained on this hypothesis.

According to the doctrine of evolution every function owes its origin to natural selection in the struggle for existence. In the lower and simpler animal life, indeed in our human progenitors as well, existence depended principally upon the success with which three great purposes were achieved, viz., (1) self-defense against or escape from enemies; (2) the acquisition of food; and (3) procreation; and these were virtually the only purposes for which nervous energy was discharged. In its last analysis in a biologic sense this statement holds for man of today. Disregarding for the present the expenditure of energy for procuring food and for procreation we will consider the discharge of energy in self-preservation. The mechanisms for self-defense which we now possess were developed in the course of vast periods of time from the lowest forms through all the intermediary stages to our present estate. One would expect, therefore, that we are now in possession of mechanisms which still may discharge energy on adequate stimulation but are not suited to our present needs. We shall point out such examples. As Sherrington has stated, there is interposed between ourselves and the environment in which we are immersed our skin in which are implanted many receptors for receiving specific stimuli which are transmitted to the brain. When these stimuli reach the brain, there is a specific response, principally in the form of muscular



action. Now, each receptor can be adequately stimulated only by the particular factor or factors in the environment which created the necessity for the receptor in question. Thus there have arisen receptors for touch, for temperature, for pain, etc. The receptors for pain have been designated noci-ceptors (nocuous or harmful influences) by Sherrington.

On the basis of natural selection only the regions of the body that have been during long periods of time exposed to injury could have developed noci-ceptors. On this ground the finger, because it is exposed, should have many noci-ceptors, while the brain, though the most important organ of the body, because it has been during a vast period of time protected by a skull, should have no noci-ceptors. Realizing that this point is a crucial one, Dr Sloan and I made a series of careful experiments. The cerebral hemispheres of dogs were exposed by removal of the skull and dura under ether anesthesia and under local anesthesia. Then one entire hemisphere was slowly but completely destroyed by rubbing it with a piece of gauze. In some instances the hemisphere was destroyed by burning. In no instance was there more than a slight response of the centers governing circulation and respiration and there was no morphologic change noted in a histologic study of the brain cells of the uninjured hemisphere. The experiment was as completely negative as the experiments on the "spinal" dog. Clinically I have confirmed the experimental findings in the course of explorations for brain tumor with a probe in conscious patients. Such explorations elicited neither pain nor evidence of altered physiologic functions. The brain therefore contains no mechanism—no noci-ceptors—the direct stimulation of which causes a discharge of nervous energy in a self-defensive action. That is to say, direct injury of the brain can cause no purposeful nerve-muscular action, while direct injury of the finger does cause purposive nerve muscular action. In like manner, the deeper portions of the spinal region have been sheltered from trauma, and they too show but little power of causing a discharge of nervous energy on receiving trauma. The various tissues and organs of the body are differently endowed with injury receptors, or the noci-ceptors of Sherrington. The abdomen and chest when traumatized stand first in their facility for causing the discharge of nervous energy, i. e., *they stand first in shock production*. Then follow the extremities, the neck, and the back. It is an interesting fact that *this* physical type or *that*

physical type of trauma elicits different responses as to the discharge of energy. Because it is such a commonplace, one scarcely realizes the importance of the fact that clean-cut wounds with a razor-like knife cause the least reaction; while a tearing, crushing trauma causes the greatest response. It is a suggestive fact that the technic of the carnivora in fighting each other and in killing their prey is probably the most efficient shock-producing trauma known. *In the course of evolution this has been the predominating type of trauma to which our progenitors were subjected.*

The discharge of energy caused by an adequate mechanical stimulation of the noci-ceptors is best explained in accordance with the law of phylogeny and association. That is, injuries awaken such reflex actions as have by natural selection been developed for the purpose of self-protection. Adequate stimulation of the noci-ceptors for pain is not the only means of causing a discharge of nervous energy. Nervous energy may also be discharged by adequate stimulation of the various ticklish regions of the body. The entire skin surface of the body contains delicate ticklish receptors. These receptors are closely related to the noci-ceptors for pain, and their adequate stimulation by an insect-like touch causes a discharge of energy—a nerve-muscular reaction—resembling that of brushing off insects. This reflex is similar to the scratch reflex elicited in the “spinal” dog. The discharge of energy is almost wholly independent of the will and is a self-protective action in the same sense as is the response to pain stimuli. The ear in man and in animals is acutely ticklish—the adequate stimulus being any foreign body—especially a buzzing insect-like contact. The discharge of nervous energy in horses and in cattle on adequate stimulation of the ticklish receptors of the ear is so extraordinary that in the course of evolution it must have been of great importance to the safety of the animal. A similar ticklish zone guards the nasal chambers. The discharge of energy here takes such form as effectively to dislodge the foreign body. The larynx is exquisitely ticklish and in response to adequate stimulus, energy is discharged in the production of a vigorous cough. The mouth and pharynx have active receptors which cause the rejection of noxious substances. The conjunctival reflex though not classed as ticklish is a most efficient self-protective reflex. There can be no doubt as to the meaning of the adequate stimuli and the



nerve-muscular response of the various ticklish receptors of the surface of the skin, of the ear, the nose, and the eye, and the larynx. These mechanisms were developed by natural selection as protective measures against the intrusion of insects and foreign bodies into regions of great importance. The discharge of energy in these instances is in accordance with the law of inheritance and association. The other ticklish points which are capable of discharging vast amounts of energy are the lateral chest wall, the abdomen, the loins, the neck and the soles of the feet. The type of adequate stimuli of the soles of the feet, the distribution of the ticklish points upon them, and the associated response leave no doubt that these ticklish points were long ago established as a means of protection from injury. Under present conditions they are of little value to man.

The adequate stimulus for the ticklish points of the ribs, the loins, the abdomen, and the neck is deep isolated pressure,—probably the most adequate being that of a tooth-shaped body. The response to tickling in these regions is actively and obviously self-defensive. The horse discharges energy in the form of a kick; the dog wriggles and makes a counter-bite; man makes efforts at defense and escape.

There is strong evidence that the deep ticklish points of the body were acquired through vast periods of fighting, with teeth and claws. Even puppies at play bite each other in their ticklish points and thus give a recapitulation of their ancestral battles and of the real battles to come. The mere fact that animals fight effectively in the dark and always according to the habit of their species, supports the belief that the fighting of animals is not an intellectual but a reflex process. There is no book of rules governing the conduct of a fight between animals. The sequences of events follow each other with such kaleidoscopic rapidity that the process is but a series of automatic stimulations and physiologic reactions. Whatever the significance, it is certain that man did not come either accidentally or without purpose into possession of the deep ticklish regions of his chest and abdomen. Should anyone doubt the vast power that adequate stimulation of these regions possess in causing the discharge of energy, let him be bound hand and foot, and vigorously tickled for an hour. What would happen? He would be as completely exhausted as though he had experienced a major surgical operation or as if he had run a Marathon race.

A close analogy to the reflex process in the fighting of animals is shown in the rôle played by the sexual receptors in conjugation. Adequate stimulation of these two distinct groups of receptors, the noci and the sexual, cause specific behaviour,—the one toward embrace, the other toward repulsion. Again, one of the most peremptory causes of the discharge of energy is that due to an attempt forcibly to obstruct the mouth and the nose, threatening asphyxia. Neither friend nor foe is trusted and a desperate struggle for air ensues. It will be readily granted that the efforts to prevent suffocation were established for the purpose of self-preservation, but the discharge of nerve-muscular energy to this particular end is no more specific and no more shows adaptative qualities than do the preceding examples. Even the proposal to bind one down hand and foot excites resentment, a feeling of self-preservation. No patient views with equanimity the application of shackles preparatory to anesthesia for an operation.

We have now considered some of the causes of the discharge of nervous energy due to various types of harmful physical contact, and have suggested analogous though antithetical sexual receptors. The response to the adequate stimuli of each of the several receptors is a discharge of nerve muscular energy of a specific type. One type for the ear, one for the larynx, one for the pharynx, another for the nose, another for the eye, another for the deep ticklish points of the chest and the abdomen, quite another for the delicate tickling of the skin, and still another in response to sexual and to painful stimuli.

According to Sherrington a given receptor has a low threshold for only one, its own,—a specific stimulus and a high threshold for all others; that is, the door is opened only on receiving the proper password. According to Sherrington's law, the individual as a whole responds to but one stimulus at a time—that is, only one stimulus occupies the nerve paths which perform acts, i. e., the final common path. As soon as a stronger stimulus reaches the brain it dispossesses whatever other stimulus is then occupying the final common path,—the path of action. The various receptors have a definite order of precedence over each other (Sherrington). For example, the impulse from the delicate ticklish points of the skin whose adequate stimulus is an insect-like contact could not successfully compete for the final common path with the stimulus of a noci-ceptor. The stimulus of a fly



on the nose would be at once superseded by the crushing of a finger. In quick succession do the various receptors (Sherrington) occupy the final common path, but each stimulus is for the time always the sole possessor, hence the nervous system is integrated (connected up) to act as a whole. Each individual at every moment of its life has a limited amount of dischargeable nervous energy. This energy is at the disposal of any stimulus that obtains possession of the final common path, i. e., the performance of acts. Each discharge of energy is subtracted from the sum total and whether the subtractions are made by the excitation of noci-ceptors by trauma, by tickling, by fighting, by fear, by flight; or by the excitation of sexual receptors, singly or in combination, the sum total of expenditure of energy, if large enough, produces exhaustion. Apparently there is no distinction between that state of exhaustion which is due to the discharge of nervous energy in response to trauma, and that due to other causes. The manner of the discharge of energy is specific for each type of stimulation. On this conception traumatic shock takes its place as a natural phenomenon, and is divested of its mask of mystery.

*The Discharge of Energy through Stimulation of the Distance Receptors, or through Representation of Injury. (Psychic).*

We will now turn from the discussion of the discharge of nervous energy by mechanical stimuli to the discharge of energy through mental perception. *Phylogenetic* association may arise through the distance receptors as well as through physical contact, viz., through sight, hearing, smell, or by a representation of these physical experiences. The effect upon the organism of the representation of injury or of the perception of danger through the distance receptors is designated *fear*. Fear is as widely distributed in nature as is its cause,—that is, fear is as widely distributed as injury. Animals under the stimulus of fear, according to W. T. Hornaday, not only may exhibit preternatural strength but also show strategy of the highest order—a strategy not seen under a lesser stimulus. In some animals fear is so intense that it defeats escape; this is especially true in the case of birds in the presence of snakes. The power of flight has endowed the bird with an easy means of escape from snakes, especially when the encounter is in the tops of trees. Here the snake must move cautiously else he will lose his equilibrium.

His method of attack is by stealth. When the snake has stalked its prey, the bird is often so overcome by fear that it cannot fly and so becomes an easy victim. The phenomena of fear are described by Darwin as follows:

"Fear is often preceded by astonishment, and is so near akin to it, that both lead to the senses of sight and hearing being instantly aroused. In both cases the eyes and mouth are widely opened, and the eyebrows raised. The frightened man at first stands like a statue motionless and breathless, or crouches down as if instinctively to escape observation. The heart beats quickly and violently, so that it palpitates or knocks against the ribs. That the skin is much affected under the sense of fear, we see in the marvelous and inexplicable manner in which perspiration immediately exudes from it. This exudation is all the more remarkable as the surface is then cold, and hence the term, a cold sweat; whereas, the sudorific glands are properly excited into action when the surface is heated. The hairs also on the skin stand erect, and the superficial muscles shiver. In connection with the disturbed action of the heart, the breathing is hurried. The salivary glands act imperfectly; the mouth becomes dry, and is often opened and shut. I have also noticed that under slight fear there is a strong tendency to yawn. One of the best-marked symptoms is the trembling of all the muscles of the body; and this is often first seen in the lips. From this cause, and from the dryness of the mouth, the voice becomes husky and indistinct, or altogether may fail. As fear increases into agony of terror, we behold, as under all violent emotions, diversified results. The heart beats wildly, or may fail to act, and faintness ensues; there is a death-like pallor; the breathing is labored; the wings of the nostrils are dilated; there is a gasping and convulsive motion of the lips, a tremor on the hollowed cheek, a gulping and catching of the throat; the uncovered and protruding eyeballs are fixed on the object of terror; or they may roll restlessly from side to side. The pupils are said to be enormously dilated. All the muscles of the body become rigid, or may be thrown into convulsive movements. The hands are alternately clenched and opened, often with a twitching movement. The arms may be protruded, as if they were to avert some dreadful danger, or may be thrown wildly over the head. In other cases there is a sudden and uncontrollable tendency to headlong flight; and so strong is this, that the boldest soldier



may be seized with a sudden panic. As fear arises to an extreme pitch, the dreadful scream of terror is heard. Great beads of sweat stand on the skin. All the muscles of the body are relaxed. Utter prostration soon follows, and the mental powers fail. The intestines are affected. The sphincter muscles cease to act, and no longer retain the contents of the body. Men during numberless generations have endeavored to escape from their enemies or danger by headlong flight, or by violently struggling with them; and such great exertions will have caused the heart to beat violently, the breathing to be hurried, and the chest to heave, and the nostrils to be dilated. As these exertions have often been prolonged to the last extremity, the final result will have been utter prostration, pallor, perspiration, trembling of all the muscles, or their complete relaxation. And now whenever the emotion of fear is strongly felt, though it may not be from any exertion, the same results tend to reappear, through the force of inheritance and association."

In an experimental research, I found evidence that the physiologic phenomena of *fear* have a physical basis. This evidence is—morphologic alterations in the brain cells, similar to certain stages of surgical shock and in fatigue from muscular exertion. Fear is, then a *representation* of trauma. Because fear was created by trauma, fear causes a discharge of the energy of the nervous system on the law of phylogenetic association. The almost universal fear of snakes, of blood, and of death and dead bodies may have a phylogenetic origin. It was previously stated that under the stimulus of fear animals show preternatural strength. An analysis of the phenomena of fear shows that so far as can be determined all of the functions of the body requiring the expenditure of energy and which are of no direct assistance in the effort toward self-preservation are suspended. In voluntary expenditure of muscular energy, such as in the chase, the suspension of other functions is by no means so complete. Fear, hence trauma, may therefore drain to the last dregs the dischargeable nervous energy; therefore, the greatest possible exhaustion may be produced by fear and trauma. This is a distinction between fear and desire.

There is a factor, however, that influences the discharge of energy which I must discuss briefly. I refer to summation.

#### *Summation.*

In the discharge of energy summation plays an important

rôle. Summation is attained by the repetition of stimuli at such a rate that each succeeding stimulus is applied before the nerve cells have returned to the resting stage from the preceding stimulus. If drops of water fall upon the skin from a sufficient height to cause the slightest unpleasant sensation and at such a rate that before the effect of the stimulus of one drop has worn off another drop falls in precisely the same spot, there will be felt a gradually increasing painful sensation until it becomes unbearable. This is summation. When a patient requires for a long time frequent painful wound dressings there is a gradual increase in the acuteness of the pain receptors. This is summation. In a larger sense the behavior of the entire individual gives considerable evidence of summation, e. g. in the training of athletes, the rhythmic discharge of muscular energy at such intervals that the resting stage is not reached before a new exercise is given results in a gradual ascent in efficiency until the maximum is reached. This is summation, and summation plays a large rôle in both normal and pathologic phenomena.

We have now pointed out the manner in which at least a part of nervous energy of man may be discharged. The integrative action of the nervous system and the discharge of nervous energy by phylogenetic association may be illustrated by the analogy of an electric automobile. The electric automobile is composed of three principal parts, the motor and the wheels (the muscular system and the skeleton); the cells of the battery containing stored electricity (brain cells, nervous energy); and the controller which is connected with the cells by wiring (the receptors and the nerve fibers); and an accelerator button for increasing the electrical discharge (thyroid glands?). The machine is so constructed that it acts as a whole for the accomplishment of a single purpose. When the controller is adjusted for going ahead (adequate stimulus of a receptor) then the conducting paths (the final common path) for the accomplishment of that purpose are all open to the flow of the current from the battery, and the vehicle is integrated to go ahead. It spends its energy to that end and is closed to all other impulses. When the controller is set for reverse the machine is by this adequate stimulus integrated to back, and the battery is closed to all other impulses. Whether integrated for going forward or backward, if the battery be discharged at a proper rate until exhausted, the cells, though possessing no more power (fatigue), have sustained no further



impairment of their elements than that of normal wear and tear. Furthermore, they may be restored to normal activity by recharging (rest). If the vehicle be placed against a stone wall, and the controller be placed at top speed ahead (trauma and fear), and if the accelerator is on as well (thyroid secretion?) though the machine will not move, the battery will not only soon be exhausted but the battery elements themselves will be seriously damaged (exhaustion—surgical shock).

We have now presented some evidence that nervous energy is discharged by the adequate stimulation of one or more of the various receptors that have been developed in the course of evolution. In response to an adequate stimulus the nervous system is integrated for the specific purpose of the stimulated receptor, and but one stimulus at a time has possession of the final common path—the nerve mechanisms for action. The most numerous receptors are those for harmful contact. These are the noci-ceptors. The effect of the adequate stimulus of a noci-ceptor is like that of pressing an electric button that sets in motion great machinery.

With this conception, the human body is likened to a musical instrument—an organ, the keyboard of which is composed of the various receptors upon which environment plays the many tunes of life; and written within ourselves in symbolic language is the history of our evolution. The skin may be the “Rosetta Stone” which furnishes the key.

#### *Anoci-Association.*

We are now prepared on the law of phylogenetic association to make a practical application of the principles of the discharge of nervous energy. In the case of a surgical operation, if fear be excluded and if the nerve paths between the field of operation and the brain be blocked with cocain, there will be no discharge of energy due to the operation; hence, there can be no shock, no exhaustion. Under these conditions of operation the nervous system is protected against noci-association whether by noci-perception or by an adequate stimulation of noci-ceptors. The state of the patient, in whom all noci-associations are excluded can be described only by coining a new word. That word is “anoci-association.”

The difference between anesthesia and anoci-association is—that although inhalation anesthesia confers the beneficent loss of

consciousness and freedom from pain, it does not prevent the nerve impulses from reaching and influencing the brain, and hence does not prevent surgical shock nor the train of later nervous impairments, so well described by Mumford. Anoci-association excludes fear, pain, shock, and postoperative neuroses. Anoci-association is accomplished by a combination of special management of patients (applied psychology), morphin, inhalation anesthesia and local anesthesia. Figs. I, II, III, Page 8.

We have now presented in summary much of the mass of experimental and clinical evidence in support of our principal theme, viz., that the discharge of nervous energy is accomplished by the law of phylogenetic association. If this point seems to have been labored, it is because we expect to rear upon this foundation a clinical structure. How does the hypothesis apply to surgical operations?

*Prevention of Shock by the Application of the Principle of Anoci-Association.*

Upon this hypothesis a new principle in operative surgery is founded, viz., operation during the state of *anoci-association*. Assuming there is no unfavorable effect of the anesthetic, and no hemorrhage, the nerve cells of the brain cannot be exhausted in the course of a surgical operation except by fear or trauma, or by both. Fear may be excluded by narcotics and special consideration until the patient is rendered unconscious by inhalation anesthesia. Then in addition to inhalation anesthesia, blocking with cocain the nerve paths between the brain and the field of operation will place the patient in the beneficent state of anoci-association, and at the completion of the operation the patient will be as free from shock as at the beginning. In so-called "fair risks" such precautions may not be necessary, but in cases handicapped by infections, by anemia, by previous shock and by Graves's disease, etc., anoci-association may become vitally important.

*Graves's Disease.*

Applying the principle of the discharge of nervous energy by phylogenetic association and on the additional hypothesis that in the discharge of nervous energy the thyroid gland is, through the nervous system, stimulated, we can explain many phenomena of Graves's disease and supply many of the factors to explain both the genesis and the cure of the disease.



In the wild state of animal life in which only the fittest survive in the struggle for existence, every point of advantage may have selection value. An animal engaged in battle or in a desperate effort at escape will be able to give a better account of itself if it has some means of accelerating the discharge of energy, some influence like that of oil upon the kindling fire. There is evidence, though perhaps not conclusive, that such an influence is exerted by the thyroid gland. This evidence is as follows: in myxedema, a condition characterized by a lack of thyroid secretion, there is a dulness of reflexes, and of intellect, a lowered muscular power, and generally a sluggish discharge of energy. In Graves's disease there is an excessive production of thyroid secretion. In this disease the reflexes are greatly sharpened, energy is discharged with very greatly increased facility, and metabolism is at a maximum. The same holds true in the administration of thyroid extract in large doses in normal subjects. In the course of sexual activities there is an increased action of the thyroid as indicated by an increased size and vascularity of the thyroid. In fear and in injury in cases of Graves's disease the thyroid is probably stimulated to increased activity as indicated by the increased activity of the thyroid circulation, by an increase in the size of the gland, by presenting the histologic appearance of activity in the nucleus of the cells, and by an increase of the toxic symptoms. Finally, Asher has stated that electric stimulation of the nerve supply of the thyroid causes an increased secretion. The origin of most cases of Graves's disease is closely associated with some of the causes of the discharge of nervous energy, especially depressive influences such as nervous shocks, worry and nervous strain, disappointment in love, business reverses, illness and death of relatives and friends. The association of activity of the thyroid with procreation is well known, hence the incidence of the double strain of overwork or of fear, and the sexual evolution in maturing girls is obviously favorable to the development of Graves's disease. The presence of a colloid goiter becomes a suitable soil for the development of Graves's disease. There is evidence that infection or auto-intoxication may be contributing factors.

I have never known a case of Graves's disease to develop from success or from happiness alone, nor from hard physical labor unattended by strain, nor from the results of energy voluntarily discharged. Some cases seem to have had their origin in

over-dosage of thyroid extract in too vigorous an attempt to cure a colloid goiter. In Graves's disease one of the most striking characteristics is the patient's increased susceptibility to stimuli, especially to trauma and to fear and to the administration of thyroid extract. It has been shown that the various causes of the discharge of nervous energy produce alterations in the nervous system and probably in the thyroid gland. This is especially true of the fear stimulus. This is clearly demonstrated in the brains of rabbits subjected to fear alone. Of special interest is the effect of daily fright. In this case the brain cells show a distinct change, although the animal is subjected to no fear for 24 hours before it is killed. Now, a great distinction between man and the lower animals is the greater control man has acquired over his actions. This quality of control having been phylogenetically most recently acquired is the most vulnerable. The result of a constant noci-integration may be a wearing out of the control cells of the brain. In Graves's disease there has been demonstrated in a typical case a marked morphologic change in the brain cells (Fig. 8 and 9). As previously stated, the origin of most cases of Graves's disease is associated in a broad sense with some noci-influence or one or more of the primitive racial stimuli which cause the discharge of nervous energy—a work stimulus. If this influence causes stimulation of both the brain and the thyroid, its excessive action may cause impairment of the brain and hyperplasia of the thyroid as well. As self-control is impaired, fear obtains ascendancy and *pari passu* would stimulate the thyroid still more actively. Finally, the fear of the disease itself becomes a noci-stimulus. As the thyroid secretion causes an increase in the facility for the discharge of nervous energy, there is established a pathologic reciprocal interaction between the brain and the thyroid. The effect of the constantly recurring stimulus is therefore heightened by summation. This reciprocal goading may continue until either the brain or the thyroid is destroyed. If the original stimulus is withdrawn before the fear of the disease becomes too strong and before too much injury to the brain and the thyroid has been inflicted, a spontaneous cure may result. Cure may be greatly facilitated by a complete rest cure. A cure implies the return of the brain cells to their normal state, with the re-establishment of the normal self-control, and the restoration of the thyroid to its normal. Then the impulses of daily life will once more



have possession of the final common path and the noci-influence be dispossessed. The discovery of the real cause of a given case of Graves's disease is frequently difficult because the exciting cause may be personal and is usually painful. Of extreme interest is the fact that the patient in the acute stage may be unable to refer to the real cause if known without exhibiting an exacerbation of the symptoms of the disease. I presume no case should be regarded as cured until the original cause no longer produces an abnormal reaction. It has been established that in Graves's disease injury to any part of the body, even under inhalation anesthesia, causes an exacerbation of the disease. Fear alone may cause an acute exacerbation. These acute exacerbations are frequently designated "hyperthyroidism" and are the special hazard of operation.

In operating on subjects of Graves's disease on the principle of anoci-association, there is scarcely a change in the pulse, in the respiration, or in the nervous state, at the close of the operation. Against the effect of the inflowing stimuli from the wound after the cocain has worn off I know no remedy. It is necessary, therefore, in the serious cases, not to venture too far. Since the adoption of this new method (anoci-association) my operative results have been so vastly improved that I rarely now regard any case of Graves's disease as inoperable, at least to the extent of making a double ligation.

If we believe that a *continuous stimulation of both the brain and the thyroid gland, on the law of phylogenetic association, intensified by summation*, causes the pathologic interaction seen in Graves's disease, then it is but the next step to assume that if the nerve connection between the brain and the thyroid is severed, or if the lobe is excised and the patient is reinforced by a sojourn in a sanatorium, or some environment free from former noci-association,—she will, providing the brain cells, the heart, or other essential organs have not suffered irreparable damage, be restored to residual health. There are still many missing links and the foregoing is not offered as a final solution, although many of the phenomena are on this hypothesis explicable.

### *Sexual Neurasthenia.*

The state of sexual neurasthenia is in many respects analogous to that of Graves's disease. In the sexual reflexes summation leads to hyperexcitability to psychic and mechanical

stimuli of a specific type analogous to the hyperexcitability in Graves's disease to trauma, fear and sexual excitation; both sexual neurasthenia and Graves's disease are based on the law of the discharge of energy by phylogenetic association and summation. It would be interesting to observe the effect of interrupting the nerve impulses from the field of the sexual receptors by injections of alcohol or other agencies and thus exclude the associational stimuli until the nervous mechanism has again become restored to the normal.

*Interpretation of Some of the Phenomena of Certain Diseases of the Abdomen on the Hypothesis of Phylogenetic Association.*

On the law of phylogenetic association it is probable that many of the phenomena of certain lesions in the abdominal cavity become explicable. The noci-ceptors in the abdomen, like noci-ceptors elsewhere, have been established by some kind of injury to which the region has been frequently exposed over vast periods of time. On this premise, we could at once predict that there are no noci-ceptors for heat within the abdomen, because during countless years the intra-abdominal region has not come in contact with heat. That this inference is correct is shown by the fact that the application of a thermo-cautery to the intestines when completing a colostomy in a conscious patient is absolutely painless. One could also predict the fact that there are no touch receptors in the abdominal viscera, hence no sense of touch in the peritoneum. Just as the larynx, the ear, the nose, the sole of the foot, and the skin have all developed the specific type of noci-ceptors as a protection against specific nocuous influences. The principal harmful influences to which the abdominal viscera have been long exposed are deep tearing injuries by teeth and claws in the course of the innumerable struggles of our progenitors with each other and with their enemies; the perforation of the intestinal tract from ulcers, injuries, appendicitis, gall-stones, etc., causing peritonitis; and over-distension of the hollow viscera from various forms of obstruction. Whatever may be the connection, it is a fact that the type of trauma from fighting corresponds nicely to that which in the experimental laboratory causes the most shock. Under local anesthesia the division of the intestines with a sharp knife causes no pain; but pulling on the mesentery elicits pain. Likewise, ligature of the stump of the appendix causes sharp



cramp-like pains. Sharp division of the gall-bladder causes no pain—but distention, which is the gall-bladder's most common pathologic state, produces pain. Distension of the intestine causes great pain, but sharp cutting or burning causes none. In the abdominal viscera, like the superficial parts, noci-ceptors have been presumably developed by specific harmful influences and each noci-ceptor is open to stimulation only by the particular type that produced it.

As we have just stated, pain is associated with the excitation of noci-ceptors, and these take precedence over and dispossess the routine functions such as peristalsis, secretion and absorption, of their occupancy of their respective nervous mechanisms, just as fear does. Hence, the loss of weight, the lassitude, the indigestion, the constipation, and the many alterations in the function of the various glands and organs of the digestive system in chronic appendicitis or chronic gall-bladder disease may be explained. This hypothesis readily explains the extraordinary improvement in the digestive functions and the general health following the removal of an appendix so slightly altered physically that only the results in many cases could persuade one that this change could be an adequate cause for such far-reaching and important symptoms. It would equally explain certain gall-bladder phenomena—the indigestion, loss of weight, disturbed functions, extending over the entire intestinal tract. This hypothesis may supply the explanation of the great discomfort and disturbance from an active anal fissure, which is a potent noci-associator, and the consequent disproportionate relief after the trivial operation for its cure. Noci-association would well explain the great functional disturbances of the viscera immediately following abdominal operations.

Postoperative and traumatic neuroses are at once explained on the ground of noci-association, with the resulting strain upon the brain cells causing in them physical lesions. If one were placed against a wall and were looking into the gun muzzles of a squad of soldiers and were told that he must not be afraid because in nine chances out of ten he would not be killed outright when the volley was fired, would it help him to be told that he must not be afraid? Such an experience would be written indelibly on the brain. Yet this is much the same position in which some surgical patients are placed. In railway wrecks we can readily understand the striking difference between the

conscious passenger and the sleeping or drunken one. In the latter persons the noci-perceptors and receptors were not aroused, hence their immunity. In the functional disturbances of the pelvic organs, association and summation may play a large rôle. On this hypothesis many cases of neurasthenia may well be explained. In the behavior of the individual as a whole, summation may well be a scientific expression for "nagging." There is certain evidence that may explain the genesis of hay fever and the common cold. Thus, we see that through the law of phylogeny and noci-association, we are able to read into the phenomena of various diseases, a new meaning.

*Observations on the Patients whose Associational Centers Are Dulled, and on Diseases and Injuries of Regions not Endowed with Noci-Ceptors.*

Reversing the order, let us glance at the patient who is unconscious and who therefore has lost much of the power of association. His mouth is always dry, the digestive processes are at a low ebb, the aroma of food causes no secretion of saliva. Tickling the nose causes no sneezing; he *catches no cold*. The laryngeal reflex is lost and food may be quietly inhaled. The entire process of metabolism is low. The contrast between man with associational centers active and man with these dulled or lost is the contrast between life and death. On the behavior of the individual without associational power much might be said.

On the law of phylogeny and association one should expect no pain in abscess of the brain, in abscess of the liver, in pyelophlebitis, in infection of the hepatic vessels, in endocarditis. This law explains why there are no noci-ceptors for cancer, and active noci-ceptors for the acute infections, because against cancer nature has no helpful response to offer and in certain of the acute pyogenic infections the noci-ceptors give the beneficent physiologic rest. Then, too, we can better understand the variation of a gastric analysis in a timid patient alarmed over his condition and afraid of the hospital. He is integrated by fear, and fear taking precedence over all other impulses, no organ functionates normally. On the same ground one sees animals in captivity pine away under the dominance of fear. The exposure of a sensitive brain to the naked possibility of death from a surgical operation is equal to uncovering a photographic plate in the bright sunlight to inspect it before putting it in the camera.



This principle explains, too, the physical influence of the physician or surgeon who, by his *personality*, inspires like a Kocher absolute confidence in his patient. The brain, through its power of phylogenetic association controls many processes that have wholly escaped from the notice of the "practical man." It is on the law of association that a flower, a word, a touch, a cool breeze, or even the thought of a fishing rod or of a gun, are helpful. On the contrary, any fragment of associational evidence of despair or misfortune—whether it be the corrugated brow, the gloomy silence of despair, a doubtful word, is equally depressing, and so could one add indefinitely to the symbolisms that govern our daily lives.

Could we dispossess ourselves of the shackles of psychology, and forget its confusing nomenclature, and view the human brain as Sherrington has said "as the organ of, and for, the adaptation of nervous reaction," many clinical phenomena would appear in a clearer light.

### *Recapitulation.*

The following are the principal points presented—in operations under inhalation anesthesia the nerve impulses from the trauma reach every part of the brain—the cerebrum that is apparently anesthetized as well as the medulla that is known to remain awake;—the proof being the *physiologic* exhaustion of and the *pathologic* change in the nerve cells. Under ether anesthesia, the damage is at least four times greater than under nitrous oxid. Inhalation anesthesia is therefore but a veneer, a mask that covers the deep suffering of the patient. The cause of the exhaustion of the brain is the discharge of nervous energy in a futile effort to energize the paralyzed muscles in an effort at escape from the injury just as if no anesthetic had been given. The exhaustion is therefore of the same nature as that from overexertion.

But if the nerve paths connecting the field of operation and the brain be blocked then there is no discharge of nervous energy from the trauma and consequently no exhaustion however severe or prolonged the operation.

Fear is a factor in many injuries and operations. The phenomena of fear exist only in animals whose natural defense is nerve-muscular. Fear is born of the innumerable injuries in the course of evolution. Fear, like trauma, may cause physio-

logic exhaustion of and morphologic changes in the brain cells. The representation of injury, which is fear, being elicited by phylogenetic association may be prevented by the exclusion of the noci-association or by the administration of drugs like morphin and scopolamin, which so impair the associational function of the brain cells that immunity to fear is established. Animals whose natural defense is muscular exertion, among which is man, may have their dischargable nervous energy used up by fear alone, by trauma alone, but most effectively by the combination of both. What is the mechanism of this discharge of energy? It is the adequate stimulus of the noci-ceptors—the electric buttons—and the physiologic response for the purpose of self-preservation. According to Sherrington the nervous system responds as a whole and to but one stimulus at a time. Such action of the nervous system would include activities of most of the remainder of the body,—the muscular system, the thyroid gland, the pancreas, the liver, the salivary and the digestive glands. The widespread physiologic changes due to fear have always been known. It may now be stated that the alterations of the nuclei of the thyroid cells under fright and injury resemble in certain respects the change seen in Graves's disease. The integration of the individual as a whole, occurs not alone in injury and fear but also, though not so strongly, under other phylogenetic associations,—such as the chase and procreation. In these great genetic stimulations not only the brain but many other organs of the body participate. When adequate stimuli are repeated in such a rhythm that the new stimulus is received before the effect of the previous one has worn off, a higher maximum is reached than is possible under a single stimulus, however powerful.

Sexual receptors are implanted into the body by natural selection and the adequate stimuli excite the nerve muscular reactions of conjugation in a manner quite similar to the action of the adequate stimulus of the noci-ceptors. The specific response of either the sexual receptors or the noci-ceptors is at the expense of the total amount of nervous energy, available at the moment. Likewise daily labor, which, in the language of evolution, is the chase, expends nervous energy. However, under the dominance of fear or injury, the integration is most nearly absolute and every possible expenditure of nervous energy is arrested; hence, fear and injury drain the cup of the dregs. This



is the potential difference between fear and desire, between injury and conjugation.

What is the practical application of all this? In operative surgery is introduced a new principle—which removes from surgery much of the immediate risk from its trauma—by establishing anoci-association; it places on a physical basis certain of the phenomena of fear; it explains to us the physical basis for the impairment of the entire individual under worry or misfortune; the daily noci-associations of the individual as a social unit; or a noci-influence of a part of the body; it also serves to explain the power of therapeutic suggestion and all the many “isms” which serve for the time to change the noci-integration; the physical basis for the difference between hope and despair; it explains most of the phenomena of Graves’s disease, of sexual neurasthenia; it is probably equally applicable to the acute infections whose chemical noci-association gives rise to many of the phenomena of the disease and explains their cure by natural immunity and by vaccines; it should teach us to view our patients as a whole; and especially should it teach the surgeon gentleness. It should teach us that there is something more in surgery than mechanics; and something more in medicine than physical diagnosis and drugs.

### *Conclusions.*

The brain cells have existed during eons of time and amid the vicissitudes of change, with perhaps less alteration than the crust of the earth. Whether lodged in man or in the lower animals, they are related to and obey the same general biological laws, thus binding them—that is ourselves—to the entire past, and they perform their function on the law of phylogenetic association.

So long have we directed our attention upon tumors, infections, and injuries, that we have not sufficiently considered the vital force itself. We have viewed each anatomic and pathologic part as an entity, and man as an isolated phenomenon in nature. May we not find in the law of adaptation under natural selection, and the law of phylogenetic association the master key that will open to us the explanation of many of the pathologic phenomena as they have already explained many normal phenomena?

And may Medicine not correlate the pathologic phenomena

of the sick man with the forces of evolution, as the naturalists have correlated the phenomena of the sound man,—and disease as well as health be given its evolutionary setting.

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### **Locomotor Ataxia and the Result of Specific Treatment.**

By FRANK BILLINGS, M. D., Chicago, Ill.

Locomotor ataxia is an old subject and has been so much discussed that I should make an apology for its presentation to you. The fact that we now believe that syphilitic virus is still active in one suffering from tabes as proved by a positive Wassermann test in the majority of patients, makes it of larger interest to us than heretofore. This knowledge also suggests a more energetic specific antisyphilitic treatment than has been practised in the past. This method of treatment has not been recognized by a good many general practitioners and it seems to me timely that the attention of the profession should be called to it.

The subject of my paper is based upon the analysis of 100 patients suffering from tabes. The records of these patients have been taken from my history sheets during the last 14 or 15 years. The 100 patients have been selected from a series of over 150. The selection was made from the larger number to secure records of patients who were examined and observed a sufficient number of times to make a diagnosis reasonably certain. It is well known to all that the symptoms of locomotor ataxia may be simulated by other conditions. I think I have rendered this mistake impossible by the selection of the 100 patients.

The analyses of the records of these patients agree in a remarkable way with the literature of the subject. Of the 100 cases, 96 were male and four female. This is, I think, about the usual proportion of male and female locomotor ataxia cases in this country. In foreign countries, on the Continent especially, one finds a larger number of female patients. The age incident of the beginning of the disease was as follows: There was one at 29 years; 28 from 30 to 39; 47 from 40 to 49; 19 from 50 to 59; four from 60 to 69 and one was 70. This shows that in 66 of the patients the disease occurred between the fortieth and sixtieth year.



Syphilis has long been recognized as the main cause of locomotor ataxia by the Erb-Fournier school. A respectable minority of neurologists have believed that locomotor ataxia could occur from severe nervous or physical shock or injury or exposure to cold and privation or to follow some infectious disease. Some have believed that the disease was due to the mercury used in the treatment of syphilis. The Wassermann test is positive in so many patients suffering from tabes that one must believe that syphilis is the cause in the majority and probably in all. Seventy-two males confessed to a knowledge of syphilitic infection. Twenty-four men denied a knowledge of syphilis and of these a few probably made a false statement and, of course, a few were probably honest in the denial of syphilis. The four females were ignorant of the existence of syphilitic infection. All of them showed evidences of syphilitic disease by one or more miscarriages of a dead fetus. One of the women suffered from alopecia and two had suffered from severe sore throat and a macular skin eruption. One of them knew that her husband had suffered from syphilis and the husband of one suffered from locomotor ataxia. The Wassermann test was made in 12 of the men who denied syphilis. It was positive in ten and negative in two. The other 12 men who denied syphilis had no Wassermann test because the test was not in use at the time they were under observation.

I am strongly of the belief that syphilis infection had occurred in every patient. Of the 72 who confessed to syphilitic infection 69 remembered the date of infection in relation to the beginning of locomotor ataxia. In six, the symptoms of locomotor ataxia began in from six to nine years; in 46 from 10 to 20 years; in 12 from 21 to 30 years, and in five from 31 to 40 years. In 46 of the 69 cases (66%) the first symptoms of locomotor ataxia occurred in from 10 to 20 years from the time that syphilis was acquired. This analysis is based of course, upon the memory of the patients, and, therefore, is approximate only.

The early symptoms of locomotor ataxia in order of frequency are the lightening pains, the alteration of the knee kick, the absence of pupillary light reflex, paresthesia in certain skin areas and zones of the trunk and lower extremities, uncertainty of equilibrium and disturbance of the bladder. Of these symptoms the lightening pains of the lower extremities and rarely of

the upper, occurred in 96%. Lightening pains were practically absent in three and the presence or absence was not noted in the record of one patient. The lightening pains indicate either a neuritis or a spinal root posterior ganglion involvement and are often mistaken for rheumatic conditions or for neuralgia. Two patients had suffered and been treated for a long time for what appeared to be sciatica. Three of the patients had been treated off and on, for pleurodynia because of severe pain in the thorax. It is well known that the lingering pains occur at periods following fatigue or exposure to cold or without known cause. Occasionally the patient suffers from lightening pains for months or years before the development of other cardinal symptoms which would enable one to recognize tabes. If these patients were watched closely and frequent tests were made of the pupillary reflex, of the knee jerk, of the cutaneous sensibility, of the bodily equilibrium, and if finally a Wassermann positive test were found, an earlier diagnosis could usually be made. Two of the patients showed the existence of the lightening pains for years before the development of other signs. One—E. W. S., age 43, a banker, confessed to specific infection 20 years before. He had received treatment for a few weeks only. He could not remember the presence of secondary symptoms. He complained of severe lightening pains in the knees which occurred at long intervals. He was seen first in 1901 just after he had been confined to his house for two weeks because of very severe lightening-like pains of the thighs, legs and arms which had required morphin for relief. A most careful examination failed to reveal any other evidence of locomotor ataxia. He was observed for eight years without the occurrence of other symptoms. Then it was noted that the knee jerks were weak and unequal, the pupillary reflex to light was sluggish and within one month the knee jerks were absent and a typical locomotor ataxia was found. The Wassermann test was positive. A second patient of 29 years was first seen in 1907. He complained of sharp shooting pains in various parts of the body, most in the thighs, legs and ankles. No other evidence of locomotor ataxia could be elicited. The patient denied luetic infection although he had suffered from gonorrhea on several occasions. The diagnosis of incipient tabes was made and his physician was advised to follow out a brisk mercurial treatment. This was not done. On August 5, 1910, the patient returned for examination. He had been under the



care of a physician for months for what was called neurasthenia. He still had the severe lightening-like pains chiefly of the thighs and legs. There was a typical Argyll-Robertson pupil, knee jerks only by reinforcement, a typical Romberg phenomenon and the Wassermann test was positive. At this time he confessed to the possibility of luetic infection in 1896. At that time he suffered from gonorrhea with ulceration under the prepuce.

The Argyll-Robertson pupil was present in 92% of the patients. In only one patient was the pupillary reflex normal. In seven the pupil was sluggish to light. Irregularity of the pupil, both as to form and size, occurred in 46 of the patients. Fixed pupils, both as to light and accommodation, occurred in seven. The early recognition of pupillary reflex is important. This is frequently missed by an attempt to examine the pupils in an ordinarily lighted room. A dark room for this examination is necessary and great care should be taken to safeguard the accommodation reflex. The eyegrounds were generally examined and at the first examination were found normal in 96. It is probable that optic neuritis occurred in some of these at a later date. Optic neuritis may be the first symptom or may be the condition for which the patient comes for consultation. The other symptoms may be present in modified form only or entirely absent. Complete or partial paralysis of the extrinsic muscles of the eye is not uncommon. Strabismus was present in four and ptosis in six of the patients.

The knee kick was absent at the time of the first examination in 80%. It was weak in eight; varied in intensity in several; was practically absent in three and was much exaggerated in eight. The absence or weakness of the knee kick in 88% of these patients agrees with the condition usually found. The exaggerated knee kick may be an early manifestation. It often occurs when the cerebral symptoms are prominent.

The Achilles jerk is sometimes exaggerated in early tabes. Sometimes not present in one and absent in the other as an early sign and it frequently disappears as the disease progresses.

Romberg's phenomenon was present in 96 of the patients. Ataxia of locomotion is a much less frequent sign of early tabes. It was present in 50% of the patients when first examined. It develops as the disease progresses and is so common a phenomenon as to give the name to tabes.

The disturbance of the bladder was one of the most notable early symptoms. This consisted most frequently of a tendency to a varying degree of incontinence or retention and sometimes of pain of a severe character in the nature of crisis. Incontinence may occur at periods only. Retention is especially important because overdistention sometimes occurs after instrumentation and bladder infection. Incontinence or retention or both occurred in 60 of the patients and a crisis-like pain in two.

Rectal incontinence was of much less frequent occurrence. Usually when it was present there was some looseness of the bowels. In two of the patients there was severe pain in the nature of a rectal crisis. A zone of anesthesia or of analgesia about the chest at about the nipple level occurred in a large number of patients. In a few a hyperesthetic zone occurred just below the anesthetic area. A subjective sensation of a band of constriction about the belly or hips occurred in about fifteen of the patients. About 70% of the patients suffered from a zone of anesthesia or hyperesthesia or subjective band-like sensation about the trunk. Subjective numbness of the toes or of the whole foot occurred in about 40%.

Sexual power was reduced in 54 of the 96 males and was entirely absent in 12. Thirty-four patients denied any change in the sexual condition.

Visceral crisis occurred in 20. Of these 13 were in the form of gastric crises. This is important because it may be the first symptom for which the patient requests treatment and may be the first manifestation of the disease. In three, gastric crisis was the first recognizable symptom. All three developed a typical Argyll-Robertson pupil, absent knee jerks and other evidence of tabes. Nine of the patients with gastric crisis had been operated upon for calculous cholecystitis without the recognition of the true nature of the disorder. Frequently such patients are treated for acute gastritis, chronic ulcer of the stomach or appendicitis. In the majority of them a careful examination revealed the true nature of the disease. It is, of course, possible for a patient with gastric crisis of tabes to suffer coincidentally from gallstone disease, ulcer of the stomach, appendicitis, etc. Only one patient suffered from a laryngeal crisis.

It has been impossible to keep in touch with all of these patients. Many were sent by physicians to whom letters were



written giving advice as to treatment. Follow up letters have been sent out in many instances and replies have not been received from any. In the earlier half of the period covered, that is, fifteen to seven years ago, the treatment usually advised was the use of mercury by inunction or by mouth followed by iodids and usually hygienic management including re-education when ataxia existed. In the last seven or eight years the treatment has been more energetic in the use of deep mercurial injections and by insistence to both the patient and doctor that the treatment should be more fully carried out. Because less time has elapsed with these later cases, the result in a majority of them is known.

The prognosis in locomotor ataxia is usually bad. No hope is usually held out for much improvement. The discovery of *Spirochaeta pallida* and the specific serum reaction of syphilis has made it more evident that the active luetic virus exists in many tabetic patients. This has caused many to use a more active specific antisyphilitic treatment than formerly and has modified the prognosis considerably. No one can expect to remove the sclerosis of the nervous tissue involved. The most one may hope is to stop the destructive process and to modify existing conditions.

I have been able to keep in touch with 43 of the patients. Of these, five are dead. Two died of paresis which developed in three and six months respectively after the patients were seen. Six have progressed to a worse condition. Thirty-two may be said to be improved. This does not express the possible percentage of improvement if treatment could be begun early and the patient kept under control for a sufficient length of time. Many of the 100 patients were probably ineffectually treated by their physicians, or the treatment was not energetic enough.

The specific treatment used in the majority was mercury. Twenty-five have had deep intramuscular injections of mercury under my own personal supervision. Four others have had the intramuscular injections under their physicians and in three the treatment was by inunction or mercury by mouth. The form of mercury used for the injections was usually corrosive sublimate in the following solution: R: hydrargyri chlorid corrosivi gr. 15; acidi phenici gr. 15; sodii chloridi gr. 30; aquae destillatae oz. 2. Misc. Of this solution 10 m., equal to gr. 1-6, to m. 20, equal to gr. 1-3, was injected deep into the gluteal muscles for 20 to

25 times during a period of about two months. In some patients a suspension of a salicylate of mercury in liquid petrolatum was used in the dose of  $\frac{1}{2}$  to 1 gr. for 20 to 25 injections. The succinimid of mercury in the form of hypodermic tablet gr. 1-5 to gr. 1 has been used. The corrosive sublimate in sterile olive oil is objectionable because the mercury is too rapidly absorbed and may salivate the patient. The rapidity with which injections may be given will depend upon the patient and upon one's ability to manage him. Practically absolute rest in bed during the injection treatment is a necessary part of it. When so confined, the injections may be given every day or every second or third day. Some It should teach us that there is something more in surgery than patients complain much of pain and others not at all. The injections of the corrosive sublimate must be given deeply. If given subcutaneously only, it may cause coagulation necrosis of the skin with resulting slough of skin and underlying tissue. Salivation rarely occurs even with daily injections. If an attempt is made to give the iodids coincidently, salivation is more apt to occur. If the patient is permitted to go about, the periods between injections must be increased and sometimes not more than one or two a week may be given. The result is not as good as when the patient is at rest. The possible explanation may be based upon the theory of Ehrlich: that the spirochaetae are overwhelmed with the vigorous use of the drug while a lesser quantity may immunize the parasite to the remedy.

My experience emphasizes to me the need of absolute rest for the patient while under the injection treatment. I am unable to say just how much the rest treatment may do for this class of people without the mercury because I have made no control clinical experiments.

It is my opinion that the iodids have but little value in a typical locomotor ataxia. It is possible that the use of the iodids begun 10 days to 14 days after the last injection, may activate the mercury within the body and make it more efficacious. A moderate dose, therefore, of 10 to 20 gr. three times a day may be used for two or three weeks of each month beginning ten days to two weeks after the last injection. It is best to repeat the series of mercurial injections after three or four months and this may be necessary for the three, four or more series of injections. The iodids may, of course, be given after each series of mercurial



injections. Surgical cleanliness must be observed in giving injections. The patient should use an appropriate antiseptic mouth wash and keep the teeth clean. Tobacco and alcohol should be prohibited. The patient may have massage or light exercise in his room once a day during the confinement to bed. All ataxic patients should have Frenkel's reeducation movements applied. These movements are not difficult for the patient to learn and follow himself. Frenkel's book with its illustrations will enable him to rationally carry out his own reeducation. The Wassermann test should be made in all patients at the beginning and end of each series of mercurial injections.

While we do not know fully about the Wassermann test and its relation to syphilis, it has been accepted by those interested in syphilis and the diseases attributed to it. Long experience will enable us finally to know its relation to syphilis and other conditions. When the test is properly controlled by known positive and negative tests, it may be more fully relied upon.

Twenty of my patients have been very much improved. Five have had a return of the knee jerk under reinforcement and in three a sluggish light pupillary reflex has returned. The lightening pains have been very much improved in all. Fatigue, exposure to cold, etc., causes a return of the pains but as a rule they are not as severe as formerly. Gastric crisis has disappeared in five of the seven who were treated. As already stated, two of the patients died of paresis and this occurred while they were under energetic mercurial treatment. Three have progressed to a much worse condition in spite of the treatment. The four patients who were treated by intramuscular injections by their physicians are reported to be improved. Three patients who had vigorous treatment by mouth and by inunctions have been very much improved. One of these is notable inasmuch as his condition is practically normal. Fourteen years ago his knee jerks were entirely absent. He had the Argyll-Robertson pupil, a considerable incontinence and irritation of bladder and severe lightening pains. His pupils are now sluggish to light, his knee jerks are present with reinforcement, his bladder is normal and the lightening pains are practically gone.

I think I am not over optimistic concerning the result of specific treatment in tabes. Like other chronic infectious processes, the condition may be so virulent that no form of treatment

will stop its progress. It is impossible to relieve the patient of morbid anatomical changes which are present. On the other hand, it is possible, I believe, with a more careful investigation and recognition of the disease in its incipency with vigorous specific treatment to afford results which make the prognosis more favorable than is believed by the profession as a whole.

During the last two and a half months I have used Ehrlich's "606" in the dose of gram. 0.4 to 0.6 in eleven patients suffering with tabes. Ten of these patients were selected because they were Wassermann positive and did not present evidence of heart, blood vessel, kidney or optic nerve disease. One patient was given a dose at the request of his physician and himself although he suffered from the optic neuritis and was Wassermann negative. One may not say at this time what the result of the treatment by "606" may be. The Wassermann tests have been repeated as late as 45 days after the injection of "606" in all these patients but one. In two the Wassermann has become negative. In all of the remainder tested, it still is positive. The drug was given in the alkaline suspension form subcutaneously under the shoulder blades in the first few patients treated. Prof. Ehrlich advised it to be given in alkaline solution deep into the gluteal muscles and this has been done in the last few patients injected. All of the patients injected showed a leukocytosis of 12,000 to 18,000 on the following day. There was a slight subfebrile to febrile disturbance and in a few, some headache, general muscular soreness and in two or three there was nausea. The immediate result in all of the patients has been the entire subsidence of pain. In one patient with a very severe hyperesthesia of the trunk, who had required, ineffectually, the use of morphin for three or four weeks, there was entire cessation of pain. In one patient who suffered for ten months from a severe radial neuritis, seven months of the time bedridden, there was entire relief of pain within 24 hours and a rapid subsidence of the serious condition of the hand and forearm within a few days. One patient suffered from a soft edema of the face involving the eyelids for a week following the injection. The appearance was like that following an over dose of arsenic by mouth. Arsenic appears in the urine soon after the drug has been given and has continued in some of our patients for two months. It will be months or even years before we know the true value of "606" as an antisyphilitic remedy. If antisyphilitic treatment will stop the progress of



locomotor ataxia at all, we may have perhaps in this drug a more valuable remedy than mercury. Until we know this, I believe we should continue to use mercury vigorously in patients suffering from tabes, but especially in those seen early and in those especially who are Wassermann positive. Finally, our present knowledge of the cause of tabes and the fact that the virus of syphilis may remain active in the individual for years and finally produce destructive changes in the brain, cord and superficial nerves, whether we call it paresis, cerebral syphilis or locomotor ataxia, demands a more thorough and energetic specific treatment of syphilis in its early stages than has heretofore been given by the majority of the profession. If mercury by mouth or by inunction or by injection in adequate dosage may produce immunity to the drug in *Spirochaeta pallida*, then the largest possible dose should be given and continued until the infection is cured.

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### Fibrous Nasal Polypi.

By D. A. PRENDERGAST, M. D., and W. J. ABBOTT, M. D.,  
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Fibrous nasal polypi are not as common as the soft so-called mucous polypi. In structure they are much the same, both present a myxomatous tissue in section under the microscope, the only difference being the amount of fibrous tissue contained. Clinically the two varieties are quite distinct. Every medical man is familiar with the appearance of the mucous polypi. They are the most common of all benign tumors of the nose and present no difficulties in diagnosis. They usually spring from the middle turbinate body or from the ethmoid cells above, but they may be found in almost any part of the nose or they may arise from the mucous membrane of any of the accessory sinuses. They often occur in great numbers and sometimes grow to great size, filling the entire nasal cavity and even protruding from the anterior nares.

The fibrous polypi do not occur in as great numbers as the mucous polypi. They arise from the deeper tissues of the nose, are usually sessile and very vascular, and they may bleed in situ. Their growth is very rapid and by pressure upon the unyielding nasal walls they may cause necrosis and ab-

sorption of bone or, in certain rare cases, may force the bones of the nose apart causing marked deformity of the face (the so-called frog face).

Regarding the etiology observers differ. The old theory, namely that nasal polypi are primary growths and the train of catarrhal symptoms, with those pointing to chronic sinusitis, are secondary to the tumor, still has its adherents. The weight of opinion, however, is in favor of the view that nasal polypi are due directly to sinusitis. In our experience the great majority of cases complained of symptoms typical of sinusitis, such as headaches, vertigo and feeling of fullness in the forepart of the head. Ballinger states that polypi are usually present on the side of the nose in which there is the greatest obstruction in the region of the middle turbinate. These cases are especially prone to develop sinusitis because of the improper drainage of the accessory sinus due to the obstruction in the region of the hiatus semilunaris and it is not unreasonable to conclude, when polypi develop in the obstructive side of such a nose and not on the opposite side, that they follow and do not precede the sinusitis. Every nasal surgeon knows that simple removal of the polypi, as with the cold snare, is followed by recurrence but if the treatment is based on the theory that nasal polypi are not primary growths but expressions of sinusitis, and efforts are directed towards eradication of the sinus disease, recurrence is the exception. Extensive measures, such as a radical ethmoid operation, often have to be resorted to for the cure of sinusitis, but, while such procedures are not justifiable in every case of nasal polypi, in those cases of reflex neurosis in which radical operations are justifiable, the perfect results that, as a rule, have followed, point strongly to the theory that the polypi are due to the sinusitis.

Many subjective symptoms are complained of but they can usually be traced to either the mechanical obstruction to nasal respiration or to the accompanying sinusitis. The sense of smell is greatly impaired or totally absent. The sense of taste is modified. Epistaxis, especially in the fibrous variety of polypi, is sometimes a prominent symptom.

The treatment should of course be directed toward the removal of the growth. Application of astringent solutions, although they are of little or no value, may be tried when patients



refuse operation. Removal with the cold snare is undoubtedly the best simple procedure. Removal by the simple methods may afford much relief in promoting normal nasal respiration and relieving the symptoms of sinusitis by favoring better drainage of the different sinuses into the nose. With this method of treatment, however, recurrence of polypi to the same extent as they were before the operation is the rule. While this is true yet the propriety of performing a radical ethmoid operation in every case of nasal polypi is an open question. Most assuredly, in cases that demand permanent relief or when the distressing symptoms of sinus disease are not relieved by the simple methods, or especially in those cases of reflex neuroses such as asthma, one should not hesitate to perform a radical ethmoid operation. The operation when properly done is not a dangerous one and the relief that follows is gratifying alike to both patient and surgeon.

The case we wish to report was one seen in the routine work at Lakeside Hospital Dispensary and we wish to thank Dr. J. M. Ingersoll for permission to report the same.

The patient, a male aged 45, was referred to Lakeside Hospital Dispensary by Dr Wille of the Marine Hospital. There was nothing in the family or personal history of any importance.

Present illness: Patient had been complaining of headaches, sense of pressure over the eyes and nasal obstruction for a period of four months.

Examination showed some deflection of the septum to the left and some hypertrophy of tissue of the inferior turbinates. The most striking thing in the examination was the distortion of the ethmoid cells of the left side. One large cell, situated about 1 cm. anterior to the normal position of the bulla ethmoidalis, hung so low as to partially cover the inferior turbinate bone. A few mucous polypi could be seen between the displaced ethmoid cells. The right side was normal.

An intra-ethmoidal growth was diagnosed and a radical ethmoid operation advised. Owing to the displacement of the ethmoid cells the operation was not performed in the classical way. The large cell overhanging the middle turbinate was first destroyed. After clearing away other ethmoid cells about this region the middle turbinate was removed with the cold snare. A number of small mucous polypi were removed from the ethmoid cells. After the anterior ethmoid cells were removed, a large fibrous polyp could be seen, situated high up in the middle meatus in its posterior part. After removing the cells around the polyp, the pedicle could be seen to be attached to the superior turbinate in its posterior third. The pedicle was cut with a nasal biting forceps and the polyp was pushed back into the nasopharynx. The recovery was uninterrupted.

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## EDITORIAL

### The Value of a Dispensary in Teaching Internal Medicine.

Only a few years ago the teaching of internal medicine consisted, for the most part, of didactic lectures, given in an amphitheater to an entire class of students. Such a method, though useful, was deficient in that the student lacked the opportunity of personally examining the patient and of familiarizing himself with the various physical signs, so necessary to make him a safe diagnostician. In other words his instruction was largely theoretical. The tendency in recent years has been to limit the number of hours devoted to didactic lectures and to give considerable time to bedside teaching. To do this properly necessitates a division of classes into small groups. These groups



visit the wards with a competent clinical instructor, to supervise their examination of patients, to point out to them their errors, to demonstrate to them points in diagnosis or physical signs, which have escaped their observation, and by careful questioning to lead the students to form a proper judgment of the correct diagnosis and appropriate treatment of their cases. To assist in carrying out such a plan of instruction there is no place more valuable than a properly equipped and organized dispensary. The latter can not be run on the old lines of hurried examination, the writing of a prescription, and the summary dismissal of patients, with the feeling of relief that so many have been attended to in a given time. Nor can the students gain any benefit from attending a clinic of this kind, as there is no time for their instruction, and they either leave at the end of their period of assignment with a feeling of dissatisfaction, or they quickly adopt the slipshod method of their instructors.

In a properly organized dispensary, the physician in charge should be an enthusiastic teacher, and should be paid a sufficient salary so that he can devote whatever time is necessary for his clinic. He should have a sufficient number of well trained assistants, who are paid a salary—men, who are capable of assisting him in teaching. The physician in charge and his assistants should be on duty the entire year, since a continuous service in a dispensary is just as essential as a continuous service in a hospital. It is necessary, too, to have a sufficient number of voluntary assistants to attend to the routine work. In close connection with the dispensary should be a well equipped laboratory in charge of an instructor from the department of clinical microscopy.

Let us trace in detail the work of the student. A patient is assigned to him, he takes the history, makes a complete physical examination, and does the laboratory work under the supervision of the laboratory instructor. Then his clinical instructor corrects his history, makes whatever additions are necessary, examines the patient carefully with the student, and discusses the case with him from the standpoint of diagnosis and treatment. In this way the student acquires confidence, and becomes familiar with methods of examination. Further, he sees the value of the laboratory as applied to actual clinical work. The record of the physical examination to be filed away is dictated by the instructor. Besides the ordinary files for the records

of the names, and the history cards of the patients, a catalogue of diagnoses should be kept so that groups of cases illustrating certain clinical conditions can easily be collected for teaching purposes in the clinic or for lectures to the entire class.

An indispensable department of the dispensary is that of social service, which consists of nurses and workers trained for this branch of the work. The nurses can follow the patients to their homes, instruct them in carrying out the orders of the physicians, and, where food or other necessities are lacking through poverty, can enlist the services of charity organizations. This department, too, can be of great value to the student, as he can go with the nurses to the homes, follow the progress of the disease and familiarize himself with the surroundings of the patient and the difficulties to be encountered; he thus sees the human side of medicine so necessary to make him a broad, sympathetic, and capable physician.

J. P.

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### **The Need of Increased Hospital Accommodation in Cleveland.**

We wish to call our readers' attention to the articles which appeared in the *Leader and Plain Dealer* September 10, 1910, an indication that the present administration clearly recognizes our immediate need of a new hospital to care for the indigent sick of our city.

Jas. F. Jackson, Supt. of Charities, states "that better facilities are required because of the growth in population. In 1890 the population of Cleveland was 261,000, then the hospital capacity was 120. That, at present, is the capacity, except that additions for contagious diseases, tuberculous cases and children have been made, but this simply enables the institution to care for other classes of cases and does not relieve the hospital proper. So in 20 years we have had an increase in population amounting to 115% with practically no increase in capacity of the hospital for acute medical and surgical cases."

It is gratifying to see that the administration takes note of this condition and we urge and hope that every effort will be made toward an early relief with proper provisions for permanent maintenance, as this is a point so often lost track of when new institutions are established.

During the past 20 years numerous charitable organizations have been formed in this city which are doing excellent and most necessary work among the poor. Their work is mostly of



the nature of outdoor relief, of relieving distressing conditions in the home and obtaining positions for the unemployed, but there has been practically nothing done for the relief and care of those who are confined to bed and who need proper nursing and medical attention.

The formation and growth of other charitable institutions clearly indicates the increase in poverty which has more than kept pace with the city's growth and shows the necessity for increased facilities for the care of the sick.

The present hospital buildings are antiquated. At the best they are not what they should be for a hospital and when overcrowded, as they constantly are, there is marked evidence of their improper sanitary arrangement and ventilation. There is no satisfactory way of isolation of different classes of cases, which is most important.

As a summary of the situation we may state that there is a hospital building 21 years old which has long since outlived its usefulness as a hospital and which cannot as other buildings be remodeled. It has only makeshifts for dining rooms, diet kitchen, quarters for officials and other who must reside in the hospital, laboratories, operating room, teaching amphitheaters and a pathological department, all these defects interfering most distinctly with the proper care of patients and educational progress, as a hospital of this character should foster scientific research and offer unlimited opportunity for advancement in medical science.

We need only mention Cincinnati as an example of what other cities are doing in this line: with its erection of a modern \$3,000,000 hospital it should put Cleveland to shame with our greater population and advancement in other and, it must be conceded, less important matters. At present, after a long and untiring struggle and gradual development from the embryonic-like arrangement of one physician and several attendants, the City Hospital has visiting, house and nursing staffs of good proportion and proper arrangement to carry on a much larger and higher class of work than is now possible with the present facilities. The entire force, composed of many of the best medical men of the city and the Nurses' Training School under a most competent principal, is well organized and ready to advance and do its best work at all times, but what is needed first is room and facilities.

This you can see is an absolute necessity and must come, so we again commend the present attitude of the administration and hereby show that we have long recognized this need and urge that the matter be rapidly pushed to completion so that the city will have an institution of which it may be proud instead of ashamed, and the necessity for which no one can deny.

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### **The Medical Honor Fraternity.**

Greek letter college fraternities are institutions peculiar to America. Indeed, all kinds of fraternal organizations seem to thrive in this country. The first of these college societies was founded at William and Mary College, Williamsburg, Va., in 1776. It was nothing more or less than a small literary or debating society, first known as the Societas Philosophia. Soon a Greek name of three words was adopted, but these words were kept secret, the initials only being used, and thus the society came to be known by these letters—the Phi Beta Kappa. In three other colleges similar societies adopted the same name and by correspondence maintained a certain coherence.

The stress of the Revolutionary War brought an interruption to the activities of the little society, and yet this organization of a dozen college boys became a pattern for the many college fraternities which arose later and which now have so large a share in American college life. After the independence of the Colonies was established and matters, educational and otherwise, became settled down to accustomed routine, this society was revived in the original, as well as in certain other colleges, with a careful restriction of its membership to those men who showed a high degree of scholarship, as measured by their attainments in college. Hence, membership in it became a badge and guarantee of high scholarship in college. As time went on, its earlier simple secret ritual was neglected and its activities reduced in most chapters to one or a few meetings a year. At these annual meetings of Phi Beta Kappa, some of the gems of American literature have been produced, since it has numbered among its members the majority of the men of high attainments in literature and the humanities which the United States has produced. To become one of such a distinguished group, became an incentive to students and thereby Phi Beta Kappa has increased the endeavor toward scholarship on the part of young men and



women in all those colleges where its chapters have been established.

The membership of Phi Beta Kappa, was restricted to students in courses in arts as distinguished from those in the sciences or the professions. When the schools of technology and applied science came to be a distinct feature of American education, there opened a field for a similar honor society among this group of men. Therefore, in 1886 the Sigma Xi fraternity was established on much the same basis as Phi Beta Kappa, except that a further restriction was made, namely that only men who gave promise of originality and of advancing science by research and invention were eligible to election.

There can be no doubt that each of these societies serves as a stimulus to students to maintain a high degree of endeavor in the college courses, and in general this endeavor has been an earnest of attainment much above the average in the subsequent careers of their members.

The character of both of these organizations has been maintained by very careful choice—especially as regards Sigma Xi—of the institutions in which chapters are established. Only those having much above the average of facilities, equipment, resources and ideals have been selected. Thus, by selecting the most promising students from the better institutions, these two societies have secured a membership which is in each case of very high standard.

When the renaissance in medical education in America began some fifteen years ago, it was suggested by men familiar with the success of the two societies mentioned, that the establishment of a society in medical schools with ideals and restrictions somewhat similar to those of Phi Beta Kappa and Sigma Xi would serve a good purpose and be a stimulus to medical students, but not until 1902 did this suggestion become concrete. In this year was founded the society of Alpha Omega Alpha. The three letters—suggestive by reason of their position in the Greek alphabet—are the initials of the words, Achios Ophelintous Alountas—which freely translated means “to be worthy to serve the suffering.”

From the first, the aim of the society has been conservatism rather than promotion, and chapters have been restricted to a few good schools. At present there are but 15 chapters, all, except two, located in strictly university medical schools. The

granting of chapters is on a very conservative basis, although applications are many. New chapters are established only after careful consideration and then only in strictly university medical schools with adequate facilities—both laboratory and clinical—and with high ideals as evidenced by entrance requirements, by personnel of the teaching staff and by the character of the students being graduated.

Each chapter is privileged to elect each year members not to exceed one-sixth of the graduating class. Part of this ratio may be elected at the end of the third year. The selection of members is on the basis of high attainment and promise, as evidenced by the success attained in the medical course. While scholastic attainments in the set course is the chief consideration, it is not the sole one. The personal equation, originality, resourcefulness, and all the other desirable attributes of the better members of the profession are considered. There is no limitation as to race, color or sex.

In addition a very limited number of honorary members may be elected from among those who have contributed to the advance of the profession of medicine.

This selection of the better graduates from the few better medical schools is giving as members of the society a body of young men of great promise. It already has a distinct influence in stimulating scholarship in those schools where chapters are located, since students feel that attainment of membership in it is distinctly desirable and an honor worth the having.

In its broader aspect, the national organization has already accomplished something in elevating the tone of medical schools, inasmuch as a chapter of the fraternity is much sought after by the different schools. The granting of charters is done with the utmost conservatism, and when a charter is granted it serves, to a certain extent at least, as a recommendation of the school by a body of competent judges, the committee on extension consisting of Dean W. S. Hall of Northwestern, Prof. W. B. Cannon of Harvard, Dean J. M. Dodson of Rush, Prof. F. C. Waite of Western Reserve, and Dr. W. W. Root, the Secretary of the Society.

It is a fact that the chapter in the Medical Department of Western Reserve University is the fourth in order of establishment and is one of the most active in the society. It has as its ambition the aim of making itself an integral part of the uni-



versity life by interweaving its activities with those of the medical school and of spreading its ideals among the students, hospital internes, and younger graduates, enlisting their sympathy and support for various movements of importance.

It may be said with great fairness that the Western Reserve Chapter has taken a high position and that its influence is greatly increased by the cooperation of the medical faculty and by the active support of certain members of the teaching staff. The actual good which an organization of this kind has accomplished is hard to estimate, but it seems that it should exert a considerable influence in the course of time. For one thing, membership in it is much coveted and accordingly will be sought after by the undergraduates, inasmuch as it is the only form of recognition which the local medical school bestows for high scholarship. The presence of this stimulus is certain to raise the level of scholarship.

It has been the custom of this chapter to hold an annual dinner, and to have some distinguished member of the society present an address. However, the society has felt that the privilege of hearing men who come to speak to it should not be restricted to its own members and therefore it has decided to make this annual oration each year a joint meeting with the Academy of Medicine. It was in accordance with this policy that Dr. Lewellys Barker recently delivered the first public Alpha Omega Alpha address at a meeting of the Clinical and Pathological Section of the Academy of Medicine. C. L. C.

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### **The Coming Meeting of the Ohio State Medical Association.**

As our readers are aware the next meeting of the Ohio State Medical Association will occur in Cleveland in May, 1911, and it is important that the profession of Cleveland, the largest city in the State, should not only outdo itself in the greeting which is extended to the Association but that it should participate in the sessions, discuss the papers and in every respect show itself worthy of its metropolitan qualifications.

Through the activities of the chairmen and secretaries of the various sections, as well as the council, many of the programs are tentatively completed and, if the quality of the papers already promised and the prominence of the various speakers from outside of the State is any criterion, this session

should vie with any which has ever been held in the character of the scientific material which will be presented to it. This material should be heard at the time of its presentation as well as read and digested later, as nothing so qualifies one to pass judgment upon all the writings of a given author and to estimate the personal equation as to see and hear him in action.

While the scientific discussions are the chief reason for the existence of medical associations, certain other functions that touch upon the relations of the profession to the State and to its citizens, as well as the relations of the individual members of the profession to each other, are coming to have a greater importance as time goes on. Radical action as regards methods for placing the profession and its activities in their proper light before the public as the correct way to secure respect from the community will certainly be suggested and will probably be acted upon at this time. The profession has always been abused through ethical limitations placed upon its individuals and its failure to compensate therefor by the attention of the various associations of which these individuals are component parts. Newspaper reports of medical matters are notoriously garbled because only the unqualified or the advertisers are willing to air their views through the press; important action concerning the correction of this abuse has already been inaugurated and will be pushed further during this meeting.

The local committee on entertainment is doing its part with energy and if every medical man in the county will "put his shoulder to the wheel" the Cleveland meeting will begin and end as one of the most important ever held in the state.

R. E. S.

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### Why Mosquitoes Bite.

While this would appear, on the face of it, to be more or less on the order of the question relating to the hen's desire to cross the road, more careful inspection shows that there are various factors to be considered. It is known of course that the favorite time for the biting of the mosquito is at nightfall; that various of the essential oils keep the pests away; that they do not come into a smudge, and similar facts connecting these peculiarities with the various senses of the insects. The main study along the lines of prevention of mosquito bites has been



towards prevention of their access to human beings and destruction of the development and adult forms. Some interesting work in another direction has been done recently in India, reported in *Parasitology* for December last by Howlett, in the direction of accurate determination of the actual sense or senses concerned in the attraction of the human body for the mosquito. The experiments are not sufficiently extensive to be conclusive and are merely presented as a preliminary report, but offer a large field for further study. The author found that mosquitoes of the ordinary Indian breeds were not attracted by fresh or stale blood, or by materials soaked with recent perspiration, indicating that these materials at least do not offer odors which attract the insect. In addition to this they note that inasmuch as motionless sleepers are bitten as much as restless ones, motion is probably unimportant. Study of the morphology of the insects, and observation of their general habits called Howlett's attention to two main facts, one that they, as well as many other insects, are very susceptible to currents of air, to which their light weight and the frequent presence of small hairs on the legs and bodies would readily conduce, and another to the effect that they were apparently attracted to the warmth of the tea pot, an observation capable of daily repetition in England and her dependencies. As a result of these notes mosquitoes in gauze bags were placed in the vicinity of warm and cold bodies, with the findings that they were very much attracted to such as set up a current of warm air from themselves toward the insects. In conjunction with these findings they noted the well known fact of the collection of clouds of mosquitoes which tend, when the air is still, to collect over any substance sending up a column of warm air. The suggestion at once appears that the attraction is the warm radiation from the body rather than the sight, sound or smell. If this be true, the time of biting would be more or less limited to such periods of the day as have a shade temperature lower than that of the body, and practical experience shows that this tends to be the case. A good field for simple research is offered by this article, and it is quite possible that different breeds of mosquitoes may be found to have definite characteristics along these lines which would admit of the development of additional methods for the prevention of their bites and whatever dangers may be consequent on them.

R. G. P.

## Department of Therapeutics.

Conducted by J. B. McGEE, M. D.

**Pharmacodiagnosis:** Albert Abrams, in the *Archives of Diagnosis* for October, considers the diagnostic pharmacotherapy of cardiac diseases. He has demonstrated empirically that the best site for stimulating the vagus, and thus increasing the force of cardiac contraction and cardiac tonicity, is the spinous process of the seventh cervical vertebra; that the most effective excitant of the heart reflex is concussion, which is a mechanical stimulus; and that the reflex in question may be evoked with the same certainty and precision as are the reflexes by the vivisectionist in his laboratory. A series of percussion blows over this spinous process stimulates the heart reflex. The majority of cases of heart block are caused by lesions of the auriculoventricular bundle, but there are also neurogenic forms of the disease due to overstimulation of the vagus. The use of atropin, an injection of 0.001 gm. (1-60 gr.), which paralyzes the vagus removes the block in the neurogenic forms (pulse rate becomes rapid), whereas in the myogenic forms the heart block is unaffected. In other words atropin will increase the pulse rate in all cases of bradycardia due either to direct or reflex excitation of the vagus. In cases of complete heart block the rate of auricular systole will be augmented, but the ventricle will be uninfluenced. Therefore in the case of bradycardia one is constrained to compare the relations of the radial pulse, the impulse of the heart and the venous pulse in the jugular. It is well to remember that partial heart block may be provoked by the inordinate use of digitalis. In tachycardia, aconite (the tincture is most reliable) slows the heart by vagus stimulation and has only a slight action on the myocardium. If aconite slows the pulse in tachycardia, diminished tonic activity of the vagi may be assumed to exist. If atropin is used between the attacks of paroxysmal tachycardia, and no attack ensues, one may conclude that paralysis of the vagi is not responsible for the paroxysms. In tachycardia from vagus paralysis, the heart does not respond to digitalis, because the latter ordinarily-inhibits the rapidity of cardiac action by stimulation of the vagi.

Here strophanthus is more effective, because it slows the heart by direct action, and not by vagus stimulation. The symptoms of broken compensation from myocardial disease may be quickly differentiated from a host of other maladies by stimulation of the myocardium by concussion of the seventh cervical spine. Even within a few minutes after concussion is executed, cyanosis, dyspnea and other signs of an insufficient myocardium become less evident, or disappear for several hours, and for a longer interval with repetition of the concussion. He has seen several practically moribund patients with pneumonia, in whom the usual cardiac stimulants failed, not only revived, but revived quickly by the method in question. In myocardial disease, when he desires to fortify the cardiac musculature, he now employs no drugs but relies solely on concussion of the seventh cervical spine.

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**Pleurisy:** James M. Anders in the *American Journal of Medical Sciences* for December, considers the treatment of pleurisy as a complication of pneumonia. It is manifestly true that the treatment of pleuritis developing before the crisis in pneumonia may require different management from that appropriate in cases arising after that event. When a serous exudate supervenes in the course of the pneumonic process, an expectant method of treatment is to be advocated, first, because puncture followed by aspiration is badly borne in pneumonia cases, and secondly, that for the reason if crisis is survived by the patient, the exudate is quite generally absorbed with surprising rapidity. If, however, the serous effusion does not disappear following the crisis, recovery is to be hastened by puncture, which he has found to be successful. Again, the removal



of a part of a massive effusion, which has displaced the heart and other adjacent viscera, is occasionally necessary during the fastigium, and favors spontaneous resorption. Such cases, however, may demand more radical operative measures for their cure later on (after the crisis), and these steps should not be too long delayed. On the other hand, a complicating serous pleurisy may prevent the occurrence of the crisis in lobar pneumonia, fever of an irregular type continuing indefinitely, or the temperature dropping by lysis. In such cases, if the effusion be copious and remain undiminished in amount, puncture should be undertaken early, and repeated if necessary. He wishes to emphasize the point that his own results from aspiration in this disease, prior to the time of the crisis or the beginning of resolution in the hepatized lung, in seriously ill patients, have been uniformly unfavorable. Remedial measures intended to control pneumococcic inflammations of serous membranes are of small value and it is of the utmost importance to avoid the use of drugs that act as depressants in all pneumonia cases. In pneumococcic pleurisy the salicylates are to be eschewed owing to their depressing action. Opium may be resorted to during the early stage of the primary disease (pneumonia) to relieve the pains of a complicating pleuritis, but should not be employed during the advanced periods, when the bronchi contain secretory products, since it dries these, thus favoring accumulation rather than removal. It is seldom necessary to continue this remedy after the second day. As to quinin he feels strongly that it possesses a limited value both as a supporting agent and in mitigating the serous inflammation. He gives it in four grain doses in a capsule followed by a few drops of dilute hydrochloric acid, to ensure its solution, three or four times daily. The treatment of an empyema, whether a complication or sequel, is surgical. It is to be recollected, however, that even a slight shock is ill borne prior to the occurrence of the crisis in pneumonia, and hence operation should be delayed until early convalescence, except under special conditions. He has found, however, that tincture of chlorid of iron in rather large doses has apparent efficacy in at least some cases of empyema.

**Chronic Nephritis:** In the *Proceedings of the Royal Society of Medicine*, W. Langdon Brown criticizes some of the principles of treatment in chronic nephritis. He believes that in Bright's disease we have probably tended to lay too much stress on the albuminuria. In the chronic parenchymatous form no doubt the drain on the albuminous constituents may become serious and a secondary anemia result. But such a high degree of albuminuria is uncommon, and he thinks that we are beginning to realize that this one symptom has unduly dominated our conception of the disease. Von Noorden thinks that any wasting is just as much explained by the monotonous diet as by the loss of albumin. The evidence that albumin (as for instance egg albumin) is ordinarily absorbed as such, and is able to "run through" the body will not really stand investigation. It is difficult to believe on theoretical grounds, therefore, that the albuminuria of nephritis can be influenced by the amount of albumin in the diet, and he has tested the point practically in a good number of cases of chronic nephritis. As regards urea excretion as a guide to the capacity of the kidney, he concludes that of our protein diet very little is used for direct repair of tissue waste, but doubtless much of the rest is used as a source of energy. It is at least probable that the ammonia groups set free from the protein excess are useful in neutralizing acids that might otherwise lead to acid intoxication. Too rigid a limitation of the protein diet with the idea of diminishing the albuminuria is bad, because it cannot effect the desired object, and deprives the patient of an essential form of nourishment. We can safely permit a much greater variety of diet than is allowed on the orthodox lines. For instance, he believes that eggs and things made with eggs may be certainly allowed, and it is undesirable to restrict such patients to milk which is too dilute a form of food for them and may increase the edema. Salt should not be allowed since it is badly

eliminated in many cases of nephritis and, accumulating in the tissues, increases the edema by raising the osmotic pressure. Prolonged nitrogen starvation is as bad for a nephritic as for any one else. Nitrogen retention is a feature of acute nephritis and a diet poor in nitrogen is strongly indicated. This period of retention is usually short, if it continues it is very ominous. A few days of comparative nitrogen starvation will do no harm and may avert grave danger. There has always been a tendency to regard flushing out the kidney as a good line of treatment in Bright's disease, but before employing it we should consider what method of diuresis we mean to employ, how far such methods are desirable in the case in hand, and how far they will achieve the end desired. Routine and indiscriminate "flushing out" is to be condemned.

**Morphin:** Samuel E. Earp, in the *Indianapolis Medical Journal* for November, calls attention to the fact that it is customary to recognize the value of digitalis when there is a rapid and feeble heart with low tension, mitral defect, and failure of compensation; also in the so-called nervous and irritable heart; and perhaps in some other conditions. It is not necessary to underestimate the good results often obtained from the use of digitalis in order to call attention to the use of codein and morphin. When compensation fails in disease of the heart, he has found the use of either of these agents very valuable. He has taken particular care to confirm his early observations both in private and hospital practice, and has demonstrated this therapeutic truth in his clinics. He quotes Cabot in a similar line of statement that there is no drug like morphin for the strengthening of an acutely weakened and dilated heart. How is it that so many physicians think of morphin as a heart depressant? All the evidence points the other way, morphin strengthens the heart action, and if given subcutaneously does it more quickly and more reliably than any other known drug. The patient with uncompensated heart disease is laboring like a runner at the finish of the race. Morphin gives his heart the rest it craves, and we gain the time needed for the exhibition of the slower remedies. There is no danger of producing the morphin habit, as the drug is needed only for 48 hours at the most. Yet, in his experience, the very men who are far too ready to give morphin for long standing or recurring pain, when the morphin habit is a serious danger, withhold the drug in acute heart failure when it is a life preserver and free from drawbacks.

**Poliomyelitis:** In the *Monthly Cyclopaedia* for November, T. A. Williams summarizes the treatment of poliomyelitis as possessing two distinct indications. The first is to preserve life and prevent paralysis. We have no certain means of accomplishing these objects and the students of immunity are not hopeful of making a serum either to arrest the disease or to prevent its inception. Hexamethylenamin has completely failed to arrest the inflammation in the cord and meninges, although it has been thoroughly tested in the Washington epidemic this year. He believes, however, that mercury may prove a possible remedy of value. He has used it in one case with benefit, the bichlorid being the form employed. Special indications are the constipation and retention of urine: these should be met by copious enemata and not by drugs to stimulate peristalsis, which is deficient not because of local toxins but because of interference with innervation at the center. Sometimes a catheter is required, but usually a flow from the bladder will follow a third or fourth enema, the first indeed often failing to expel any feces. The second indication is to minimize the pain and irritability of the attack and to secure rest and sleep. The warm bath or hot pack is most efficacious. In some cases support of the back by a firm cushion, well warmed and not too hard, gives great relief and the proper adjustment of the pillows under the neck is of great importance. An immobilizing jacket has been of great service in giving comfort to some little patients. An ice cap causes great dis-



tress and its use has no justification except the thoughtless routine of orthodoxy. Finally after the inflammation has subsided, usually in about a week, galvanism should be used as a direct means of diminishing the pain which is derived from the stretching and sagging of joints, ligaments and muscles caused by the loss of tonus in the muscle groups paralyzed and sometimes aggravated by hypertonus of antagonists not paralyzed. The relief given in this way is surprising to those who have not tried it. One adult case would gain a tranquil repose of over two hours after half an hour's application of galvanism to his paralyzed muscles. In the treatment of the residual paralyses, if galvanism is used from the beginning, atrophy of the muscles will not occur, for the exercise of their contractile function maintains the integrity of the muscle elements, and it is only galvanism which can excite contractility when the motor nerve and its endings have degenerated. He states that it is necessary to restate these simple physiological facts on account of the vogue of the pernicious statements that no treatment of poliomyelitis should begin until four months have elapsed. This doctrine is another instance of unthinking orthodoxy.

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**Tuberculosis:** In the *New York Medical Journal* for Nov. 26, Rau (*Folia Therapeutica*) remarks that there is no disease which the physician is called upon to treat in which so many varied methods of treatment are adopted as in tuberculosis. Nothing has done so much harm in the fight against tuberculosis as the indiscriminate and routine administration of drugs in the early stages, thus wasting a lot of time in which the patient should be carrying out hygienic and climatic treatment. Creosote is a valuable drug when it suits the patient. In a great many instances in which there is fermentative diarrhea, flatulence, loss of appetite and indigestion, creosote seems to be of wonderful benefit. It ought to be given in small doses, not exceeding two minims in capsule. Large doses upset digestion, and cause a loathing for food and in such cases the drug should not be continued. As to strychnin he believes 1/30 of a grain three times a day quite sufficient: the larger doses are to be condemned. Every case of hemoptysis should be looked upon as serious until it has quite stopped. The two drugs which he uses are morphin and amyl nitrite. A small hypodermic injection has the effect of relieving the cough, slowing the respiration and calming nervousness. Nitrite of amyl has been largely recommended and in many instances seems to have quite a specific effect, especially in early cases. It is given in the form of a capsule and inhaled. If bronchopneumonia should supervene on hemorrhage, it is important to stop either morphin or amyl nitrite. Nothing exhausts a patient so much as a severe sweating: an endeavor to prevent night sweats ought therefore to be made if possible. In addition to ordinary hygienic measures, the body should be sponged two or three times daily with diluted acetic acid or vinegar. Camphoric acid in doses of 15 to 20 grains, seems to have the best effect in restraining perspiration. Picrotoxin and agaricin also act well, but very often our final resource is atropin, 1/100 to 1/50 grain, but this remedy should be deferred as long as possible. Tuberculin in its various forms is now playing a most important part in the treatment of the various manifestations of tuberculosis. Bovine tuberculin, or tuberculin prepared from the bovine culture, is especially recommended for cases of early pulmonary tuberculosis. Human tuberculin, Koch's T. R., is prepared from human cultures and is recommended for the treatment of lupus, etc., the dosage being the same as with bovine tuberculin. In early cases it has a splendid effect if combined with open air treatment, and even in advanced cases it is sometimes beneficial. The tuberculin should be injected only with the strictest aseptic precautions and under one skilled in vaccine and bacteriological work.

**Wassermann Reaction:** In the *Archives for Internal Medicine* for December, Homer F. Swift considers the effect of treatment on the Wassermann reaction. The diagnostic value of the Wassermann reaction, now well recognized, has as a direct corollary, the importance of the test as a guide to treatment. In much of the earlier work it was found that the frequency of negative reactions, especially in the latent stage, bore a direct relation to the amount and efficiency of previous treatment. Later statistics have confirmed the early observation and today it is recognized that the value of a negative reaction from a diagnostic standpoint, is much affected by recent specific medication. Baisch, in his study of Colle's law, by the use of the Wassermann reaction, found that in women bearing syphilitic children, and not giving a positive reaction, spirochaetae could be demonstrated in the maternal portion of the placenta. He considers the reaction to be therefore always an indication of the presence of living spirochaetae, although the converse is not necessarily true. Practically all observers agree on two points: (1) that the reaction more readily becomes negative under treatment in the early stages of the disease than it does in the late stages, and (2) that in the early stage a serum reacting negatively is more liable to become positive when treatment is intermitted than is the case in the later stages. The effect of the different modes of administration of mercury has been studied by various observers with but little unanimity as to the best form. The most marked influence, however, was obtained from the injection of calomel, which caused 83% of the reactions to become weaker. His study has not extended over a sufficient length of time to enable him to form a final conclusion. It demonstrates, however, a parallelism between the clinical symptoms, the efficiency of treatment, and the intensity of the reaction. It indicates most strongly, therefore, the value of the reaction as a guide to treatment. It would appear advisable to drop the old rules concerning treatment and be guided more largely by the reaction. In this way more patients in the early stages of syphilis may be spared a certain amount of unnecessary medication and many others in the later stages, by continued treatment, may possibly be saved from serious visceral manifestations of the disease.

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**Euquinin:** *Merck's Archives* for November (from *Folia Therapeutica*) states that euquinin has been before the profession long enough to warrant the statement that it has established a permanent position among the new preparations. It is a carbonic-ethyl-ester of quinin, and is in the form of acicular insoluble crystals. It contains more of the alkaloid than quinin sulphate, but a little less than the hydrochlorid. The chief advantage of the preparation is the absence of the bitter taste of ordinary quinin compounds, and this circumstance allows of its easy administration to children. This is of special importance in cases of whooping cough, wherein if any drug possesses some specific action it is quinin. The bitter taste of quinin has undoubtedly militated against its general use for children but many authorities who have employed euquinin for this disease assert that the attacks are diminished and that the spasms disappear: in fact, pertussis is speedily converted into a simple bronchial catarrh. Euquinin should be given in the same doses as quinin sulphate. Symptoms of cinchonism appear to be very rare after euquinin, and it is therefore valuable as a substitute for the ordinary quinin salts when they cannot be tolerated, because extended clinical experience has shown that euquinin can be put to all the therapeutic uses of the quinin preparations usually in vogue.

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**Calcium:** The *Medical Record* for December 17 considers in its editorial columns the action of the lime salts. It has been suggested that the toxication of oxalic acid is to be attributed to its com-



binning with calcium in the body tissues and fluids. The hypothesis has recently been confirmed by Panuschke who, according to Meyer, has shown that not only the cardiac depression, but also the general toxic symptoms of oxalate poisoning, can be relieved by the administration of calcium or of its physiologic equivalent, strontium. The essential element in relieving the poisoning consists in replacing the calcium withdrawn by the oxalic acid from the protoplasm, and not in combining with and rendering inactive the acid itself. The symptoms all point to an increased irritability of the autonomous and sympathetic nervous systems due to the withdrawal of calcium, and the administration of calcium counteracts this hyper-irritability. Meyer believes that the following facts have been demonstrated: first, calcium has a sedative effect on the vegetative nervous system, and second, it diminishes the permeability of the walls of the blood vessels. In the light of these experiments there is added strength to the theory of eclampsia advanced by J. R. Mitchell, that this disease of pregnancy, similarly to tetany, is to be attributed to a calcium starvation of the patient. Eclampsia of pregnancy is a complex symptom of the mother's need for calcium. The growing fetus is a calcium parasite and will have this element even at its mother's expense, causing in the latter carious teeth, headache, and nervousness. In pronounced calcium deprivation "the nerves writhe in protest," first with intermittent tetanic twitchings, later with frequent tetanic convulsions. The administration of calcium salts quickly relieves these manifestations. This theory ingeniously explains in a most simple manner, the causation of the toxemia of pregnancy, about which the theories already published have been legion. The edemas of gravid women receive a further rational interpretation in Meyer's hypothesis of diminished permeability of the walls of the blood vessels resulting from the withdrawal of calcium. The theory of Mitchell explains better than any other the manifold phenomena of eclampsia, namely, its greater frequency in twin pregnancy and at term, the nervous excitability and convulsions, the delayed coagulation time of the blood, the decayed teeth, the urinary findings, the associated edema, the eclampsia of lactation and of the newly born, and the cessation of convulsions under a milk diet. It is hoped that a thorough trial will be given to the administration of calcium lactate, in the toxemia of pregnancy, as advised by Mitchell.

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### Department of Pharmacy.

Conducted by H. V. ARNY, Ph. G., Ph. D.

**Removing Iodoform Odor:** The odor of this substance (and also of guaiacol and creosote) can be removed from the hands, says *Journal de la Sante* (*Druggists' Circular*, 64, 626) by washing with tar water containing a little oil of wintergreen.

**Incompatibility of Golden Seal and Witch Hazel:** When fluid extracts of these two drugs are mixed, a dull tinted precipitate containing active principles is formed; hence the two fluid extracts should not be prescribed together (*Journal de la Sante*, through *Druggists Circular*, 54, 627).

**Colocynth:** At the last meeting of the Pennsylvania Pharmaceutical Association H. M. Sechler (*American Druggist*, 57, 336) discussed the quality of the drug with particular reference to the presence of the seeds of this fruit which, according to the pharmacopoeia must be separated and rejected.

The writer found by actual experimentation that peeled colocynth apples contained about 66% by weight of seed, that commercial powdered colocynth always contains some seed, since it is practically impossible

to exclude those seeds imbedded in the pulp; that the presence of even 2% of seed would show that considerable care had been taken in living up to the pharmacopoeial requirements.

**Interesting Prescriptions:** Harold Wyatt in a paper entitled "Notes on Dispensing" (*Pharmaceutical Journal*, through *American Druggist*, 57, 337) discusses a number of prescriptions from among which the following are abstracted: Potassium iodid, sodium nitrite, spirit of nitroglycerin, sodium benzoate, syrup of ginger and water, darkened in color because of liberation of nitrous acid. By adding enough sodium bicarbonate to keep the liquid alkaline, no coloration was produced.

He calls attention to the value of senega as an emulsifier, citing a prescription calling for paraldehyd, syrup, tincture of orange, solution of senega B. P. and water as making a satisfactory thin emulsion, much easier to take than a gum emulsion. Likewise a prescription calling for 15 minims of chloroform in a four ounce mixture, emulsioned easily by shaking with a dram of solution of senega before adding to the other ingredients.

A prescription calling for fluid extract of cinchona, compound infusion of gentian and gold chlorid gives a fair looking mixture with a bulky precipitate if the gold salt in solution be added to the other ingredients last.

Likewise a mixture of sodium salicylate, potassium bicarbonate, ammoniated tincture of guaiac, emulsion of petroleum and chloroform water can be made sightly by making a saturated solution of the salicylate in the chloroform water, gradually adding the tincture of guaiac to this liquid, pouring the mixture into the emulsion with stirring, and lastly, adding the bicarbonate dissolved in the rest of the chloroform water. This is because a saturated solution of sodium salicylate dissolves the resin of guaiac. A call for a catheter oil containing four grains silver nitrate to the fluid ounce was filled by dissolving the silver salt in one and one-half drams of alcohol and adding this solution to castor oil; it being one of the few fixed oils that are miscible with alcohol.

An eye ointment calling for yellow mercuric oxid, cocain hydrochlorid, boric acid and vaselin was returned as very irritating. Deciding that the irritating action was due to formation of mercuric chlorid, the writer used the equivalent amount of the alkaloid cocain dissolved in castor oil and the resulting product proved entirely satisfactory.

Cachets calling for aspirin and potassium iodid liberated iodine and this in turn colored the starch of the cachet blue. The writer made a permanent product by drying the two chemicals, triturating each separately with a little butter of cocoa and packing the mixed powders lightly into the conceals.

A prescription calling for extract of aloes, pepsin, extract of nuxvomica, phenol and extract of anthemis enough to make a mass, was found to yield a soft mass which when "filled" with an absorbent powder, made pills of unwieldy size. The difficulty was obviated by using powdered chamomile flowers instead of the extract, the powder proving an excellent absorbent.

Another soft pill was one calling for terpinol and sodium benzoate of each one and one-half grains. Ordinary vegetable absorbent powders proved useless, but the employment of a half grain each of Kieselguhr and hard soap to each pill made a satisfactory product.

## Academy of Medicine of Cleveland.

### ACADEMY MEETING.

The seventy-ninth regular meeting, being the annual meeting, was held at the Cleveland Medical Library, Friday, December 16, 1910. The President, C. B. Parker, in the chair.



The annual report of the Secretary, O. A. Weber, was, in part, as follows:

During 1910 the Academy held eight meetings, seven of which were addressed by eminent men from other cities, viz.: Emil G. Beck, Chicago; Roswell Park, Buffalo; Homer F. Swift, New York; Joseph E. Winters, New York; Chas. L. Scudder, Boston; Harvey Cushing, Baltimore, and Hugh T. Patrick, Chicago. Thirteen papers were presented at Academy meetings, eight on subjects pertaining to general medicine, and five on surgical topics.

A decrease in the average attendance at the Academy meetings was reported. The largest attendance at any one meeting was 195, the smallest 43, the average being 116.

The growth of the Academy had not been as conspicuous as in previous years, due to the fact that no allied professions had formed sections during the year. The membership was as follows: Active 504, non-resident 94, associate 98, honorary 10; total 706.

There were elected to membership during the year 1910, 30 active, 2 non-resident, and 7 associate members. The losses were as follows: Resigned 6, deaths 3, suspensions 10.

The Academy continued to be looked upon as a model organization. The Secretary had received many inquiries regarding its plan of organization, rules and procedure, etc., from other cities and had mailed copies of the Constitution and By-Laws to other societies to aid in their reorganization.

The Council for the year consisted of: President C. B. Parker, Vice-President F. C. Taylor, Secretary O. A. Weber, Treasurer W. S. Hobson, W. E. Lower, H. W. Rogers, C. E. Ford, A. J. Skeel, J. J. Thomas, L. W. Ladd, W. B. Laffer, J. J. R. MacLeod, M. J. Lichty, Torald Sollmann, S. L. Bernstein, J. N. Lenker, T. A. Burke, J. E. Tuckerman, R. E. Skeel, O. T. Schultz and C. L. Cummer.

The Council held during the year 10 meetings with an average attendance of 12. It appointed the following as chairmen of the standing committees: Membership Committee, C. L. Cummer; Program, W. B. Chamberlin; Legislative, R. E. Skeel; Public Health, O. T. Schultz.

Among the more important transactions of the Council may be mentioned:

The appointment of committees to suggest amendments to the Constitution; to investigate the subject of compulsory vasectomy; to represent the Academy of Medicine at the patriotic meeting held Feb. 22 at Trinity Cathedral; to serve in the campaign for the prevention of unnecessary blindness; to confer with a committee from the Board of Education to arrange for a series of lectures to school children; to take charge of the arrangements for the Ohio State Medical Convention to be held in this city in May, 1911.

The authorization of the payment of \$1.00 per member per year to the Cleveland Medical Journal.

Resolutions on the "Optometry Bill" condemning the bill.

Approving the report for a new tuberculosis hospital made by the Anti-Tuberculosis League.

Resolutions approving the creation of a National Department of Health.

Recommending to Governor Harmon that the State Board of Medical Examination and Registration be upheld in revoking certificates in abortion cases.

The report of the Treasurer, W. S. Hobson, was as follows:

Receipts:	Balance in bank (audited in December, 1909) .	\$ 268.99
	Interest on deposits .....	10.03
	Rebate from the Ohio State Association.....	5.00
	Initiation fees and dues .....	2,522.75
	Total.....	\$2,806.77

Disbursements: Vouchers, countersigned by President and Secretary .....	\$2,217.34
Balance on hand (audited December 15, 1910) .....	589.43
Total .....	<u>\$2,806.77</u>

The Chairman of the Auditing Committee, J. E. Tuckerman, reported that the examination of the books and accounts of the Treasurer showed them to be correct as reported.

Reports of the Councilors of the various Sections (condensed) :

	Clinical and Path.	Experi- mental Medicine.	Ophth. and Oto-Lar.	Medico- Pharma- ceutical.	Veter- inary.
Meetings .....	9	5	6	3	9
Total attendance .....	329	270	123	158	91
Average attendance ...	36	54	26	52	10
Papers read .....	29	9	18	7	8

The following report of the Committee on Public Health was presented by its Chairman, O. T. Schultz:

"Matters relating to public health coming before the Council of the Academy have been so few that the appointment of a full committee has seemed unnecessary to the Chairman and he alone is responsible for the little that has been inadequately done. During the year there has been nothing which could properly be referred to the Committee on Public Health by the Council or its officers.

"During the last session of Congress the Chairman of the Committee drew up resolutions, addressed to the members of the House of Representatives from the Twentieth and Twenty-first Ohio Congressional Districts and the Senators from Ohio, urging the passage of the bill, introduced in the Senate by Senator Owen of Oklahoma, the purpose of which was the establishment of a Federal Department of Health. These resolutions were adopted by the Council. Replies to the resolutions were received from both Congressmen and both Senators. Those of the members of Congress from the Twentieth and Twenty-first Districts and of the Senior Senator were indefinite and could not be construed as offering any very strong support to the measure. The reply of the Junior Senator was more frank and direct, in that it declared definitely against the measure in its present form while, at the same time, expressing belief in the need of centralization of the activities of the Federal Government in public health matters. The Owen bill is still in committee. If it is reported out during the present session of Congress it can hope for little aid from those members of the Senate and House to whom the medical profession of Cleveland must look for help in such matters. If, as appears probable, the present measure shall be permitted to slumber in committee, the change in the Ohio delegation in the next National Assembly offers hope that the activities of the Academy of Medicine of Cleveland may yield more successful results. The efforts of the Academy of Medicine as a body and of its individual members should be directed toward placing before the new Congressman from the Twentieth District and before the new Senator from Ohio, when elected, the arguments in favor of a National Bureau of Health. This should be done even before the next Congress convenes or before any particular measure creating such a department has been introduced.

"Upon the suggestion of the Chairman of your Committee there were presented to the Council, by the Chairman of the Public Health Committee of the Chamber of Commerce, the resolutions, drawn by the latter Committee, relating to the conduct of health matters by the city administration and dealing, more particularly, with a broad reorganization and increasing effectiveness of the city's endeavors in the suppression of tuberculosis. These resolutions were adopted by the Council."



The report of the Program Committee, presented by its Chairman, W. B. Chamberlin, was as follows:

"The report of the Program Committee is largely the record of the meetings of the past year. If the character of these meetings has met with your approval your Committee is well satisfied, if not it welcomes your criticism and helpful suggestions. During the year there have been eight meetings with papers, presented by eight out-of-town guests and seven papers by Academy members. Although a distinguished man from another city had consented to present a paper at the usual June meeting, this meeting was omitted on account of the very poor attendance at the previous ones.

"Your Committee desires at this time to call attention to several matters, vital, as it seems, to the success and growth of this Society. The first is the marked decrease in the attendance at the Academy meetings. For this, several causes may be assigned. Among the first may be mentioned the number of meetings. In addition to those of the general Academy, there are at the present time meetings of the following Sections: the Clinical and Pathological; the Experimental Medicine; the Medico-Legal; the Medico-Pharmaceutical; the Ophthalmological and Oto-Laryngological; and the Veterinary. The sentiment has been expressed by not a few members that there are too many meetings. Another cause suggested for the decreased attendance is the excellent manner in which all proceedings are reported in the Journal; many members feeling that it is useless to attend the meetings when the papers, as well as the discussion, can be read at home. While this is certainly a compliment to the excellent manner in which the Journal is at present conducted, it is, to say the least, unfortunate for the Academy.

"The second point is the decadence, or better, the loss of the old-time general discussion, certainly one of the most valuable features of our meetings. What is the reason? Are we having too many papers by men from out of town and too few from those at home? Possibly members hesitate to discuss a paper presented by one who is a master in some special line of endeavor. While it is an opportunity to listen to our many distinguished guests, the meetings can hardly be given over to them entirely. The strength of any society must come from within,—from the interest and participation in the meetings by its members. A society in a neighboring county has only papers presented by visitors. It is superfluous to remark that this society has been dead for some time. Your Committee earnestly desires any suggestions which you may make as to the character of the meetings.

"That the succeeding committee may not feel itself immediately embarrassed the programs for January and February have already been arranged. For January it is planned to have a public health meeting and to extend an invitation to the members of the Chamber of Commerce. The first paper will be by Dr. R. G. Perkins, who is fresh from his tour of inspection of European communities; the second by Dr. Evans, Health Officer of Chicago, with discussion by Dr. C. E. Ford. Dr. Barton Cooke Hirst, of Philadelphia, will present a paper at the February meeting."

The reports of the other standing committees were incorporated in the report of the Secretary.

The report of the Milk Commission of the City of Cleveland for 1910 was presented by its Secretary, J. J. Thomas, and was as follows:

"The chief problems confronting milk commissions and producers of certified milk are: (1) The elimination of tuberculosis from the herd. (2) The production of a milk coming up to certain chemical standards *with as low a bacterial count as possible* without using heat or preservatives. (3) The guarding of this milk from contamination of certain communicable diseases.

"It is doubtful if tuberculosis can ever be eliminated if additions to

the herd are being made from time to time, for even when cows are sold subject to the tuberculin test, inspected by a careful veterinarian and subjected by him to a double dose of tuberculin, they may not react, even though tuberculous, because of a recent 'dose' administered designedly by the unscrupulous trader. It is probable that the more the test comes into general use and the more its various phases become known, the more difficult it will be to rely on a single tuberculin test for excluding tuberculosis.

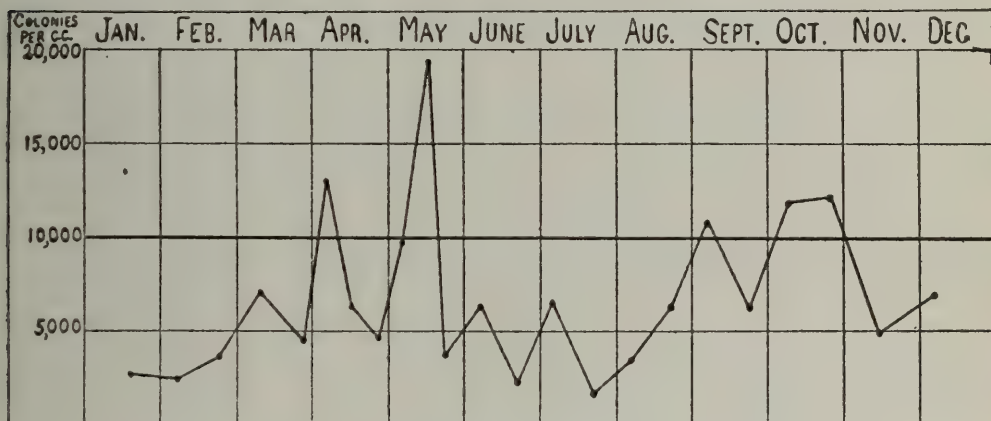
"The experience of your Commission during the past five years has been that 3 to 4% of our herd react positively at every annual retesting. Two years ago this percentage rose to 10%; one year ago it dropped again to about 2%+.

"After several interviews with our producer and veterinarian it was recently decided to quarantine all animals for eight weeks after making a tuberculin test before they were admitted to the herd. Improvements in the test have recently been adopted: two or two and a half times the original dose of tuberculin is injected and the temperature is taken every two hours after the injection instead of waiting eight hours as was done formerly. The temperature is taken three times instead of once before the injection is made. With these additional precautions it is hoped to reduce still further, if not to eliminate entirely, the percentage of reacting animals at our annual tests.

"The increasing difficulties and expenses met with in retesting recently tuberculinized cattle will undoubtedly prove an incentive to producers to breed their own cows. To a certain extent this is being done already at Novelty and it is the aim of the present management ultimately to raise all cows from which certified milk will be produced.

"The several chemical examinations made for the Commission by H. D. Haskins have always revealed a milk coming well within the standards required by our contract.

"Twenty-one bacterial counts made by our bacteriologist, R. G. Perkins, or in his absence by W. H. Weir, and covering a period of 10 months, are recorded on the following chart:



"The average for the 21 counts is 6653, the majority of the tests being close to 5000. The average for this period is raised by two or three counts exceeding our 10,000 standard. No count even remotely suggesting a serious contamination has been recorded this year.

"The veterinarian has made 12 visits to the farm and dairy for special inspection during the past year. His report records, (1) his opinion of the *cleanliness of the cows*, (2) what was observed in regard to the technic employed in milking, and (3) the conditions found in the dairy house.

"Health of employees: There are 30 adults and two children among the employees and their families. The health of all employees is reported



weekly by the superintendent on a card which is mailed to the Commission. The veterinarian also on his visits makes special inquiry in regard to this matter and includes this in his report. The assistant secretary has made 10 visits for general inspection during the year. At these times the state of health of the employees and their families was ascertained and in several instances physical examinations were made.

"A case of follicular tonsillitis in a child, the son of an employee, was seen by the assistant secretary recently and a culture was taken and reported upon by R. G. Perkins; otherwise no illness of any consequence has been observed. As a special precaution for the early detection of important infectious diseases the farm superintendent has instructions to telephone at once, to the secretary, of the occurrence of sore throat or skin eruptions among any of the employees or their families.

"A modification in the dating and sealing of the milk has been in force for the past three months. The 'date of delivery', formerly used and put on the cap with a rubber stamp, has been changed to the 'day of delivery' printed in a different color from that of the seal of the Commission. The chief advantage of this is that the 'day of delivery' can always be made out by the customer, whereas the date, printed by hand with a rubber stamp, was often so faintly marked that it speedily became illegible. The metal covering, fastened with wires, has been replaced by a tinfoil cap, making tampering with the milk practically impossible as well as considerably enhancing the appearance of the package.

"At the last annual report reasons were given for advancing the price of certified milk from 16 to 18 cents a quart. It was hoped at the time that this advance in price might be only temporary, but the high cost of living affects the dairyman as well as his customer, as may be inferred by this extract of Prof. Herbert A. Hooper's address before the second annual meeting of the California Association of Medical Milk Commissions, April 18, 1910: 'It is said that since 1894 the cost of labor has increased 100%, the installation and equipment for the proper handling of milk 20%, and feed in general 50%. The cost of sound cattle has advanced 75%. Whereas a few years ago bran, a staple dairy concentrate, could be purchased at \$14.00 per ton, it now costs about \$30.00. With a similar advancement in other feeds, as well as in labor, it is conservative to say that these elements in the cost of production have doubled in recent years.'"

The election of officers for 1911 resulted as follows: President, W. B. Laffer; Vice-President, W. W. Holliday; Secretary, O. A. Weber; Treasurer, J. C. Darby; Trustees to serve three years, W. T. Corlett and C. E. Ford.

The program was as follows:

Locomotor Ataxia and the Result of Specific Treatment. Frank Billings, Chicago. (Appearing in full on page 35.)

M. J. Lichty, in opening the discussion, said that he had five cases of tabes under treatment: in three a Wassermann test had been tried but all proved negative, although no mercury had been given for some time previous to the test. He had been surprised to see the response to treatment by inunctions and injections as compared with the oral administration of mercury; this had been particularly noticeable in one case of tabes of 14 years' duration in which no improvement followed years of treatment by mercury in tablet form, while deep injections of mercury resulted in immediate and marked improvement. He had been glad to learn that the Wassermann test was so helpful in diagnosis. He asked how many series of mercurial injections the speaker used, and what his experience had been with sodium cacodylate.

W. B. Laffer was surprised to hear how frequently paresis had been found in the series of tabes cases reported by the speaker. His own results in treating tabes, although he used similar formulæ, had not been so brilliant as those described. He used mercury but also paid special attention to general hygiene and to reeducation movements. There were

very many cases that closely simulated, but were not really, tabes: these made up the great majority of the cases that were ultimately cured.

J. S. Tierney referred to a case presenting suggestive symptoms of tabes but giving no definite history of syphilis. A Wassermann test proved positive and the cerebrospinal fluid was rather suggestive of syphilitic infection. Mercury, however, produced no improvement. Death followed an intercurrent attack of pneumonia and careful investigations at autopsy showed no apparent changes in the nervous system.

R. Dexter said that in his work he had obtained positive Wassermann reactions in about 65% of tabes cases.

C. W. Stone said that the reports of different observers, as to the frequency of a Wassermann reaction in tabes, showed a wide variance. The speaker's percentage of positive tests was higher than any others he had seen: the average would be from 50 to 60%. A negative test, of course, conveyed very little information.

O. T. Schultz thought the existence of a positive Wassermann test might not necessarily mean that an active luetic process existed, since, so far as was known, the reaction was due not to the presence of *Spirochaeta pallida*, but to products of degeneration, especially of nervous tissue. This fact probably explained the occurrence of a positive Wassermann reaction in many cases of leprosy.

M. Metzenbaum said that since "606" was a non-corrosive preparation of arsenic, one would expect satisfactory results from sodium cacodylate, also a non-corrosive arsenical preparation. He had seen good effects from it in one case of tabes and wished to know the speaker's experience with it.

E. O. Houck thought that syphilis was the most poorly treated of all infectious diseases. Mercury was undoubtedly *the* drug, but it had to be given in sufficient amount: the small doses of the protoiodid usually employed were, as a rule, quite inadequate.

Dr. Billings, in conclusion, said that there were many points to be considered when dealing with the Wassermann reaction. A single, uncontrolled test was of no value: a given serum should be run through with known positive and negative sera and the technic observed in all should be parallel and be followed most exactly. He had found that after 18 or 20 deep injections of mercury a positive Wassermann became negative, but later again became positive. The test would remain negative only after repeating a series of injections three or four times, giving iodids betweentimes. He had used cacodylate of soda very extensively and had had no good results in tabes or syphilis, although he had found it very useful in chorea and in pericardial and pleural effusions. If given hypodermically, five to ten grs. per diem, no toxic effects, except perhaps slight nausea, were noted. If it were used in tabes or syphilis it might annul the good effect of "606" by establishing an immunity to arsenic in the spirochaetae.

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## EXPERIMENTAL MEDICINE SECTION,

Meeting Jointly with the

## OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION.

The fifty-third regular meeting was held at the Western Reserve Medical College, Friday, December 23, 1910, C. F. Hoover in the chair.

The program was as follows:

The work of the Physical Laboratory of the National Electric Lamp Association, with Experiments and Demonstration of Apparatus. E. P. Hyde, Ph. D., H. E. Ives, Ph. D., and P. W. Cobb, B. S., M. D.

E. P. Hyde, the Director, gave an outline of the aims and objects of the laboratory. Among other things, he called attention to the great loss of energy and the comparative want of usefulness in much of the research work on subjects which involved the consideration of physical



and physiological knowledge. He pointed out that a pure physiologist, in undertaking such work, was very apt, from want of accurate physical knowledge, to disregard the physical aspects of his research, while on the other hand, the pure physicist, although his physical measurements might be accurate, failed to apply them from the physiological standpoint. He also pointed out that it was one of the policies of the laboratory to have physicist and physiologist work side by side, and as a possible further development, to associate with these a psychologist whose knowledge of the interpretation of visual sensations would be of incalculable value in the solution of many of the problems awaiting investigation.

H. E. Ives, representing the physical department of the laboratory, next gave a most interesting presentation of certain fundamental facts connected with the analysis of white light. After explaining how, for such an analysis, the human eye was an inadequate instrument, he proceeded to show by what way such analysis could be effected by means of prisms. The action of a prism in thus decomposing light into the colors of the spectrum had not been unanimously accepted by the early physicists; the poet Goethe, for example, who thought himself a much greater physicist than poet, could never believe that the colors seen when light passed through one were any other than colors present in the prism itself. The human eye could see only a portion of the spectrum into which white light was thus decomposed the infra-red and the ultraviolet portions failing to be appreciated. By the use of a projection spectroscope he then illustrated his remarks by well chosen experiments. He demonstrated the spectrum of a spot of white light from the arc light. He showed how by holding a test tube containing a solution of quinin sulphate in the spectrum the ultraviolet rays were rendered evident by its fluorescence. The white light thus produced by synthesis of all the colors of the spectrum could be simulated by white light produced by a synthesis of three primary colors or by fusion of two complementary colors. He superimposed on the screen bands of color taken from the red, green and violet portions of the spectrum with the result that a white spot appeared. If one of these were omitted from the mixture (e.g., violet) a yellowish color resulted. Other pairs of colors, however, when thus fused, gave practically white light. It was pointed out in this connection that many colors of the spectrum could thus be matched by others synthesized from three primary colors, and that the decision as to what a given color was due to, or its being a primary color, or a synthetic color, could only be made by analyzing it by means of a prism; in the former case, the same color would leave the prism as it entered it; in the latter, two colors both dissimilar from the original color would be obtained. The practical application of these experiments rested in the analysis by similar methods of artificial light. Those in common use were all more or less yellowish and when analyzed by a prism showed a deficiency of the violet end of the spectrum.

In considering the problem of economy in artificial electric lighting, it was pointed out that there was a tremendous loss in energy, a small fraction of 1% of the energy of the coal used to produce the power being ultimately utilized in producing light. Among other experiments demonstrated was one on phosphorescence. A series of small tubes with different substances when exposed to light and then placed in darkness emitted various colored lights of remarkable brilliancy and entirely without heat or with very little expenditure of energy.

P. W. Cobb, in charge of the physiological department of the laboratory, then gave an interesting review of the effect of light on living matter. Starting with plants he showed how, for the synthetic process that occurred in these, light was essential. In many unicellular organisms, which might be plants or animals, it had been observed that attraction to or repulsion from a source of light might occur, and some, such as the cholera vibrio, might be killed. This last action was due to the ultraviolet rays, and cultures of these bacteria in quartz tubes had actually

been used as a biological indicator for ascertaining the presence or absence of such rays. In the multicellular organisms it was pointed out that by specialization of function the eye cells were the ones that had become pre-eminently sensitive to light. The portions of the spectrum for which the eye cells were adapted to receive impressions lay between the red and violet. When the light contained an excess of ultraviolet rays hurtful influences might come into play, as evidenced by the effect which ultraviolet light had on the cornea as well as on the skin. This effect of ultraviolet rays on epithelial cells had been employed therapeutically in the treatment of serpiginous ulcers with markedly beneficial results. It was to closely related rays that the Finsen light treatment in lupus owed its efficacy. This was probably because of bactericidal action.

He then demonstrated an apparatus which he was employing for working out certain problems connected with the phenomenon of "glare." This, he explained, was the general name given to the discomfort felt in artificial lighting when the light was not properly placed. It was due to a disproportionate distribution of light in the retina rather than too high a general intensity. In the apparatus was a test object of crossing lines which could be made of variable thicknesses by means of a fine threaded graduated screw, the retinal image could thus be varied in size without any disturbing factor of variation in distance, illumination, etc., being introduced. The acuity of vision, as determined by the power to distinguish the lines, was then compared under normal and abnormal conditions of lighting.

H. G. Sherman, in opening the discussion, asked questions regarding the efficiency of amber colored glasses in ophthalmological practice to protect the eyes from hurtful light.

G. N. Stewart referred to the great significance of the investigations of which the program formed a part. He considered such work as a sign of the times, and referred to the meeting as one of the most successful in recent years of this Section.

J. J. R. MacLeod pointed out that colored glasses could be of little value in protecting the retina from ultraviolet rays since such rays were in any case absorbed by the humors of the eye.

Professor Whitman discussed the question of economical light production, and contributed some interesting data regarding the efficiency of light production by the fire-fly.

R. K. Updegraff, M. Metzenbaum, R. G. Perkins, F. C. Waite, and W. I. LeFevre also took part in the discussion, and questions as to the life of lamps, the effect of red light in the treatment of smallpox, the suppression of certain colors, etc., were raised.

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### MEDICOLEGAL SECTION.

The fourth regular meeting was held at the Cleveland Medical Library, Friday, December 30, 1910, C. H. Clark in the chair.

The program consisted of papers upon The Reporting of Venereal Diseases, by F. A. Oakley, M. D., and R. B. Newcomb, M. D., LL. B. (To appear in full in the Journal).

W. I. LeFevre agreed that education was the keynote of the question. First, instruction of adults who, in turn, could enlighten their children. The German system of education in such matters at the age of puberty was excellent. The laity were beginning to learn the importance of venereal diseases, especially when marriage was contemplated.

T. A. Burke said that a large proportion of pelvic venereal disease in women was innocently acquired, and even the husband might be unaware that a former attack of gonorrhea had not been cured. Registration would not avail much in such cases, in fact, without compulsory hospitalization it would prove of little value. He was surprised to hear in the last paper that legally a physician would probably not be liable for



damages for disclosing professional knowledge as to the existence of venereal disease. Lectures on the venereal diseases by suitable persons in the schools would prove a great help in lessening the evil.

J. J. Thomas drew attention to the fact that the health regulations of the city specifically demanded the reporting of venereal diseases, but so far none had been reported. He wished to ask as to the legality of such a demand. If education were begun at the time of puberty many children would fail to receive the instruction, as many of them left school at an early age. Fournier, after the consideration of the question as to whether a prospective bride should be informed of a history of venereal disease in the bridegroom, decided that the results would usually prove disastrous.

J. E. Tuckerman said that certain things might be done to lessen the prevalence of venereal disease, viz., provision of adequate hospital accommodation—which Cleveland had not—and the requirement by the State that prior to marriage the contracting parties provide health certificates showing that they were free from venereal disease as well as tuberculosis or insanity. In education lay the greatest hope. He doubted if the courts would award damages against a physician who violated professional secrecy in reporting venereal disease.

W. B. Laffer thought education of children in such matters offered the best means of preventing this evil, but it must be begun early, 16 years was too old. Many of the lawyers probably did not realize the number of babies and young children who acquired gonorrhea; it was particularly apt to become epidemic in children's wards in hospitals. One objection to the granting of health certificates was the fact that in the chronic stages it was often impossible to say whether gonorrhea existed or not, even with the aid of the microscope, and the same was true of syphilis.

L. K. Baker said that as a former physical director in the Y. M. C. A. he had to examine many boys and occasionally found venereal disease. They attempted to educate the boys and found that lectures on such subjects were always very well attended. It was difficult to make progress along these lines in the schools so long as the teaching staff consisted almost entirely of women.

Judge Hadden believed that more was to be gained by education and moral influences than by other measures. If, as had been pointed out, the recognition of gonorrhea and syphilis was at times difficult or even impossible, registration would prove insufficient.

W. H. Tuckerman said that while it was true that the existence of gonorrhea in the terminal stages might be difficult to prove, there was usually no trouble in recognizing the acute cases. The problem was similar in many respects to that in tuberculosis. The instruction of children in such matters in a proper manner was far better than letting them pick up such knowledge from one another at an early age and in a wrong way.

H. B. Herrick said that for all practical purposes it was not difficult to tell when a case of gonorrhea was cured. Even now many patients with such infections never consulted physicians but took patent medicines or were treated by drug clerks. If cases had to be reported the patients would be scared away and never apply for treatment. He believed in education, begun at an early age; by this means the young man could be reassured and not afraid, if he acquired gonorrhea, to consult his family physician.

H. Pears said he had been struck by the modesty of the physicians in declaring their inability to diagnose many cases of gonorrhea or syphilis. He was amazed to hear the statistics as to the prevalence of these diseases, and he would like to know whether they were more common now than formerly. He believed the demand for a clean bill of health as a prerequisite to obtaining a marriage license would be a very wise plan. If registration were attempted it would be impossible to secure reports on every case, as, for example, if the son of a physician

or the physician himself were infected. The fact that such reports, once made, would be permanent records and later perhaps prove a stigma to the individual, would alone defeat the possibility of satisfactory registration. The real solution of the problem seemed to be in education of adults as well as children.

R. B. Newcomb, in conclusion, said he did not think the city regulations in regard to the reporting of venereal diseases could be enforced. The North Dakota law, to which he had referred, had been in force only two years and it was too soon yet to say how it would work. The results would be watched with great interest.

The election of officers for the ensuing year resulted as follows: Chairman, R. B. Newcomb; Vice-Chairman, J. E. Tuckerman; Secretary, B. A. Gage; Councilor, T. A. Burke.

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### COUNCIL MEETING.

The Council of the Academy of Medicine of Cleveland met Saturday, December 10, 1910.

The following were elected to active membership: L. A. Pomeroy, William Chambers, G. B. Farnsworth, W. T. Miller, Jr., F. E. Cutler, John MacLachlan, J. C. Fox, Geo. F. Glass. To non-resident membership: N. Culbertson, Massillon, Ohio.

The following names were ordered published. For active membership: R. B. Metz, H. H. Davis. For non-resident membership, J. D. Knox, Niles, O.

H. J. Herrick was transferred from active to non-resident membership. The resignation of W. W. Ellis was accepted.

A communication from the Montgomery County Medical Society in regard to an abortion case that is to be brought before Gov. Harmon for final decision was read.

It was voted that the Academy of Medicine communicate to Gov. Harmon, that in their opinion the action of the State Board of Medical Examination and Registration has always been careful and conservative and that their action in revoking certificates in abortion cases should be upheld.

A report of the preliminary Committee on Arrangements for the Ohio State Medical Convention, to be held in this city in May, 1911, was read. It was voted that the report be accepted and that the Committee be continued with power to enter into all necessary contracts and to appoint its subcommittees.

It was voted that a banquet be held at the time of the State Convention.

It was voted that the chair appoint a committee to investigate the advisability of the city establishing a diagnosis laboratory. The following were appointed: A. J. Skeel, Chairman; T. A. Burke, S. L. Bernstein, L. W. Ladd, and R. Dexter.

The Milk Commissioner was reappointed for the next year.

A vote of thanks was extended to the presiding officer for the great interest he had taken in the Council meetings.

The Council of the Academy met Thursday, January 5, 1911.

The following were elected to active membership: C. A. Hall, H. N. Cole. To non-resident membership: F. C. Larimore, Mt. Vernon, O.

The following names were ordered published: For active membership: F. G. Boudreau, Herman Shube. For non-resident membership: C. B. Bliss, Sandusky, O.

The resignation of E. N. Hill was accepted.

The following were elected chairmen of the Standing Committees: Membership Committee, Richard Dexter. Program Committee, W. B. Chamberlin. Legislative Committee, R. E. Skeel. Public Health Committee, O. T. Schultz.



C. E. Ford was elected member of the State Committee on Public Health and Legislation.

T. Sollmann was elected to fill out W. B. Laffer's term as Trustee.

It was voted that C. E. Ward and R. J. Lawlor be given an opportunity to present the subject of contract and lodge medical work to the Council.

It was voted that a committee be appointed to consider any necessary amendments to the Constitution, to report back to the Council and to make provision for printing the revised Constitution.

It was voted that the President, through the Secretary, instruct the Secretaries of each Section that they are to meet, subject to the call of the chairman of the Program Committee, to arrange their programs in harmony with the program of the Academy.

A communication from W. Lower concerning a five dollar assessment for defraying the expenses of the Ohio State Meeting was read. It was voted that the communication be referred to the Committee on Arrangements.

It was moved that it is the sense of the Council that the practice of giving dinners the night of our meetings be discouraged. It was voted that this motion be laid on the table.

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### Cleveland Medical Library Association.

The annual meeting of the Cleveland Medical Library Association was held at the Library on December 12, 1910. The first portion of the meeting was devoted to a memorial to the late Marcus Rosenwasser, a former member of the Library, who recently bequeathed to the Association the sum of \$10,000, the income of which should be expended for new books. Addresses were given by Mr. Newton Baker, City Solicitor; C. B. Parker, L. Wolfenstein, and J. H. Lowman. A large photograph of Dr. Rosenwasser, presented by S. L. Bernstein, was on view in the club rooms.

The report of the Secretary showed that the total number of members is now 245. The Treasurer's report showed a balance in the treasury of \$963.95.

The Directing Librarian reported that there are at present in the library about 47,000 bound and unbound volumes, an increase of about 1,700 volumes during the year. Most of this gain is accounted for by the presentation to the library of the libraries of the late Marcus Rosenwasser and Dudley P. Allen.

The Library subscribes for 84 foreign and American medical journals and receives about 150 others through exchanges of the Cleveland Medical Journal.

It was announced that a friend of the Library had offered the sum of \$150.00 to be given as prizes for the best medical papers on any subject in medicine or surgery, to be submitted to a committee of judges before September 1, 1911. The papers are to be read at some meeting of the Academy of Medicine during the fall of 1911. Only those members of the Library Association who have been graduated in medicine during the last ten years will be allowed to compete for these prizes. Further details governing the award of these prizes will be announced later.

Resolutions were adopted by the Association on the death of A. H. Marvin and D. H. Beckwith.

The following officers were elected: President, C. B. Parker; Vice-President, B. L. Millikin; Secretary, H. L. Sanford; Treasurer, W. E. Bruner; Directing Librarian, C. A. Hamann; Executive Committee, H. G. Sherman, J. F. Hobson, H. E. Handerson, J. P. Sawyer, J. C. Wood, R. E. Skeel, S. H. Large, C. E. Briggs and J. A. Stephens. Trustees for three years: H. G. Sherman, H. Pomeroy, S. W. Kelley, H. J. Lee, H. F. Biggar, R. E. Skeel, H. Robb, W. B. Laffer, H. Powell, B. L. Millikin.

### Book Reviews.

**Lessons on the Eye, for the Use of Undergraduate Students.** By Frank L. Henderson, M. D. Fourth edition, revised, illustrated. 1910. P. Blakiston's Son & Co., Philadelphia, Pa. Price, \$1.50 net.

The contents have been divided into 28 lessons, or one for each week of a seven months' session. Besides being an outline or guide for the teacher it is intended for the student as a substitute for his classroom notes. The author has aimed to give as much as the undergraduate student can reasonably be expected to learn in the limited time allotted to the eye in our medical schools, at the same time giving that which will be of most service.

E. L.

**Manual of Clinical Pathology for the General Medical Practitioner.** By Richard Weiss, M. A., Ph. D., F. C. S., in collaboration with George Herschell, M. D., London, and Andrew Charles, F. R. C. S., Dublin. Price, 2/ net. J. & A. Churchill, London.

This is a small pamphlet of some 70 pages, comprising the examination of urine, stomach contents, feces, blood, and the serum diagnosis of syphilis, tuberculosis, typhoid and Malta fevers, etc. It is intended as a working guide for the general practitioner, and appears to be quite complete for a work of the kind. It is evidently intended to be used in connection with outfits of apparatus, reagents and stains supplied by a certain manufacturer.

We were especially interested in the description of the serum diagnosis of syphilis, which requires a little more than two pages. The method, which is described as a simplified Wassermann test, is not to be commended, but really deserves condemnation. It employs dried complement, which is unstable; uses active patient's serum with an alcoholic antigen, which leads to fallacious results; and gives no accurate method of measuring the amount of patient's serum.

C. L. C.

**Pellagra.** By Dr. A. Marie, Editor-in-Chief *Archives de Neurologie*, etc. With introductory notes by Prof. Lombroso. Authorized translation from the French by C. H. Lavinder, M. D., Passed Assistant Surgeon U. S. P. H. and M. H. S., and J. W. Babcock, M. D., Physician and Superintendent, State Hospital for the Insane, Columbia, S. C. With additions, illustrations, bibliography and appendices. The State Co., Publishers, Columbia, S. C.

There is a common saying heard among the poor pellagrins of Venetia which shows their familiarity with a, to them, long well-known disease. "Pellagra can give rise to seven kinds of ills: 1. It can drive one crazy. 2. It drives one into the water. 3. It draws one backwards. 4. It makes one walk bent. 5. It gives one vertigo. 6. It gives one ravenous hunger. 7. It causes rashes on the skin."

This book, an abridgement of the late lamented Professor Cesare Lombroso's great work on pellagra, contains additions by the authors. Beginning with the first authentic history of pellagra in Europe in 1735, its course is traced down to the present, taking into consideration the spread of the disease, etiology, symptoms, prophylaxis, diagnosis and treatment. There is an appendix containing copies of laws lately passed in Italy in regard to prophylaxis. Numerous excellent plates are spread plentifully through the book to show cutaneous manifestations of both European and American cases.

The book is interesting, very readable, scientific, and of value to physician, sanitarian, and legislator alike. There are today 80,000 pellagrins in Italy, while more than 36% of Egypt's population is affected, and, sad to relate, many of these are hereditary cases. After years of endeavor Prof.



Lombroso has succeeded in convincing Italy that "in pellagra we are dealing with an intoxication produced by poisons developed in spoiled corn through the action of certain micro-organisms, in themselves harmless to man." Hence since 1905 the death rate has been falling. Roussel was able to do it in France in 1844, so that now France, after mending conditions, has only a few hereditary pellagrins in her insane asylums to remind her of bygone days.

The book also has a complete index of all English literature on pellagra and an index of selected foreign literature. H. N. C.

**The Practical Medicine Series.** Comprising ten volumes on the year's progress in medicine and surgery, under the general editorial charge of Gustavus P. Head, M. D., and Charles L. Mix, M. D. Volume VIII. *Materia Medica and Therapeutics, Preventive Medicine, and Climatology.* Edited by Geo. F. Butler, Ph. G., M. D., Henry B. Favill, A. B., M. D., and Norman Bridge, A. M., M. D. Series 1910. Chicago: The Year Book Publishers.

This admirable little work is a compact review of the essentials in progress, during the past year, in the three sections into which it is divided. Each of these amply covers its special field, and embodies practically all that is of value within its limits. The first and most extensive is that of Therapeutics, to which about 250 pages are devoted. Butler states that "there is unquestionably a revival of interest in drug therapy," and he believes that "therapeutics is unmistakably coming to its own." The brilliant discoveries of Ehrlich, with the great promise that his wonderful work implies, have notably contributed to this result. Preventive Medicine and Climatology comprise the remainder of this volume, which is to be highly commended as a convenient aid to all who desire to keep in touch with recent professional advances. J. B. M.

**The Prevention of Sexual Diseases.** By Victor G. Vecki, M. D. Ex-President San Francisco German Medical Society, Member American Urological Association, etc. With introduction by Wm. J. Robinson, M. D. The Critic and Guide Co., New York.

This is just another book. It contains nothing original; it offers no solution of the problems with which it deals. The fact that the best minds working on sociological questions have sought in vain for centuries for a cure for these evils proves that it is not easy to find a practicable way out. But we have enough books which simply deplore present conditions; what we need is a book offering some workable remedy. This book does not contain it. H. L. S.

**The Physician's Visiting List** (Lindsay and Blakiston's) for 1911. P. Blakiston's Son & Co., Philadelphia.

This compact and useful visiting list is supplied in different sizes, providing for from 25 to 100 patients per day or week, those for the larger number of patients being in two volumes. While very compact, the book contains a considerable amount of useful information, such as dose table, incompatibilities, etc., as well as blank pages for regular routine work and additional space for obstetric engagements, consultations and other special work.

### Acknowledgments.

**A Treatise on Diseases of the Skin.** For the use of advanced students and practitioners. By Henry W. Stelwagon, M. D., Ph. D., Professor of Dermatology, Jefferson Medical College, Philadelphia. Sixth edition, revised. Handsome octavo of 1195 pages, with 289 text-illustrations,

and 34 full-page colored and half-tone plates. Philadelphia and London: W. B. Saunders Company, 1910. Cloth, \$6.00 net; half morocco, \$7.50 net.

A Manual of Diseases of the Nose, Throat and Ear. By E. Baldwin Gleason, M. D., Professor of Otology at the Medico-Chirurgical College, Philadelphia. Second revised edition. 12mo of 563 pages, profusely illustrated. Philadelphia and London: W. B. Saunders Company, 1910. Flexible leather, \$2.50 net.

The Treatment of Disease. A Manual of Practical Medicine. By Reynold Webb Wilcox, M. A., M. D., LL. D. Professor of Medicine (retired) at the New York Post-Graduate Medical School and Hospital, etc. Third edition, thoroughly revised and enlarged. P. Blakiston's Son & Co., Philadelphia, Pa. Price, \$7.50 net.

The Practical Medicine Series. Volume IX. Skin and Venereal Diseases. Miscellaneous Topics. Edited by W. L. Baum, M. D., and Harold N. Moyer, M. D. Series 1909. The Year Book Publishers, Chicago, Ill.

The Non-Surgical Treatment of Duodenal Ulcer. By George Herschell, M. D., London. Reprint of an article in the Clinical Journal.

The Practice of Surgery. By James G. Mumford, M. D., Instructor in Surgery in the Harvard Medical School. Octavo of 1015 pages, with 682 illustrations. Philadelphia and London: W. B. Saunders Company, 1910. Cloth, \$7.00 net; half morocco, \$8.50 net.

Diagnosis and Treatment of Diseases of Women. By Harry Sturgeon Crossen, M. D., Professor of Clinical Gynecology, Washington University; Gynecologist to Washington University Hospital and Director of the Gynecological Clinic, etc. Second edition, revised and enlarged, with 744 engravings. C. V. Mosby Co., St. Louis, Mo. 1910.

State Board Examination Questions and Answers of Forty-one States and Two Canadian Provinces. A Practical Work, giving Authentic Questions and Authoritative Answers that Will Prove Helpful in Passing State Board Examinations. Reprinted from the Medical Record. Third edition, revised and greatly enlarged. Wm. Wood & Co., New York.

Emanuel Swedenborg's Investigations in Natural Science and the Basis for His Statements Concerning the Functions of the Brain. By Martin Ramström. University of Uppsala, 1910.

An Anatomical and Surgical Study of Fractures of the Lower End of the Humerus. By Astley Paston Cooper Ashhurst, A. B., M. D., Prosector of Applied Anatomy in the University of Pennsylvania, etc. The Samuel D. Gross Prize Essay of the Philadelphia Academy of Surgery, 1910. Lea and Febiger, Philadelphia and New York, 1910.

The Third Annual Report of the Commissioner of Health of the Commonwealth of Pennsylvania, 1908.

Publication No. 10. American Association for Labor Legislation. First National Conference on Industrial Diseases. Chicago, June 10, 1910.

Reprints by Eugene Carson Hay, Hot Springs, Ark.

Principles of Public Health. A Simple Text Book on Hygiene Presenting the Principles Fundamental to the Conservation of Individual and Community Health. By Thos. D. Tuttle, B. S., M. D., Secretary and Executive Officer of the State Board of Health of Montana. World Book Co., Yonkers-on-Hudson, New York, 1910.

Primer of Hygiene. By John W. Ritchie, Professor of Biology, College of William and Mary, Virginia, and Joseph S. Caldwell, Professor of Biology, George Peabody College for Teachers, Tennessee. Illustrated by Karl Hassmann and Hermann Heyer. World Book Co.; Yonkers-on-Hudson, New York, 1910.

"Salvarsan" or "606" (Dioxy-Diamino-Arsenobenzol). Its Chemistry, Pharmacy and Therapeutics. By W. Harrison Martindale, Ph. D., Mar-



burg, F. C. S., and W. Wynn Westcott, M. B., Lond., D. P. H., H. M. S. Coroner for North-East London. Paul B. Hoeber, New York City. 1911. Price \$1.50, net.

The Care and Training of Children. By LeGrand Kerr, M. D. Funk & Wagnalls Co., New York City. 1910. Price, \$0.75, net.

Bismuth Paste in Chronic Suppurations. Its Diagnostic Importance and Therapeutic Value. By Emil G. Beck, M. D. C. V. Mosby Co., St. Louis, Mo.

Around the World Dentistry. By Henry L. Ambler, M. S., D. D. S., M. D., D. H., Cleveland. Price 75 cents. The Judson Printing Co., Cleveland, O.

### Medical News.

**Samuel W Kelley** recently spent several weeks in St. Louis, where he gave a course of lectures and demonstrations on the surgery of infancy and childhood.

**David K. White** has removed his office and residence to 10551 Euclid Ave.

**Hospital Staff Changes:** Sister M. Irene was installed on December 10 as Sister Superior at Charity Hospital, succeeding Sister M. Charles in that position. Sister Charles goes to Lakewood for a much needed rest. Sister M. Alexandrine will succeed Sister M. Adelaide, who has been Sister Superior of St. Ann's Maternity Hospital for the last six years. Sister M. Eleanora has lately succeeded Sister M. Gerharda as Sister Superior of St. John's Hospital. Sister Gerharda was obliged to discontinue her labors in the city because of protracted ill-health.

**Meetings of the Academy of Medicine of Toledo and Lucas County:** The Surgical Section met Friday, November 25, 1910. The program was as follows: 1. The Acute Abdominal Manifestations of Syphilis, L. A. Levison; discussion opened by C. N. Smith and R. P. Daniells. 2. Postoperative Rontgen Treatment of Carcinoma of the Breast, Harry W. Dachtler; discussion opened by W. H. Fisher.

The General Meeting was held Friday, December 2, 1910. The program consisted of an address, "Fifty Years in the Practice of Medicine," by S. B. Hiner, Lima, Ohio.

The Pathological Section met Friday, December 9, 1910. The program consisted of a paper upon the Etiology and Pathology of Goiter, illustrated with lantern slides, J. H. Jacobson.

The Medical Section met Friday, December 16, 1910. The program was as follows: 1. Sunshine and Shadow in the Clinical Laboratory Service, R. C. Longfellow. 2. Report from the Board of Health, B. Becker, Health Officer.

**W. W. Grube, Toledo**, former owner of The American Medical Compend, is spending the winter at Corpus Christi, Texas.

**J. F. Madden, Toledo**, is spending four months at the European clinics.

**The Toledo Medical and Surgical Reporter** has purchased and absorbed The American Medical Compend.

**The Business Men's Club, Toledo**, announces the following appointees to serve for the year of 1911 on its Milk Committee: W. Dice, H. S. Smead and W. A. Humphrey. The following are the appointees to serve on the Food Committee: J. P. Gardiner, W. F. Maxwell and Henry Hess.

**The Summit County Medical Society** held the annual meeting in Akron, December 6, 1910. The program consisted of a paper on Acute Anterior Poliomyelitis, by Simon Morganroth. The following officers were elected for the ensuing year: President, Harry S. Davidson; Vice-President, J. George Grant; Secretary, George M. Logan; Treasurer, Louis J. Wise; New Member Board of Censors, E. A. Weeks; New Member Committee on Health and Legislation, C. T. Hill; Library Committee New Member, Dell S. Bowman; Delegates to State Meeting, C. E. Held and J. V. Cleaver; Committee on State Legislation, J. A. Hulse; Committee on National Legislation, H. C. Theiss. The Society is in excellent condition, has a membership of 101 and has a few applications for membership for the new year. The regular monthly meetings are held the first Tuesday evening of each month and clinical meetings are held at the Akron City Hospital the last Monday evening of each month.

**The National Confederation of State Medical Examining and Licensing Boards** will hold its twenty-first annual meeting in Chicago, Ill., on Tuesday, Feb. 28, 1911, at the Congress Hotel. The subjects to be taken up at this meeting will be a consideration of the State Control of Medical Colleges; a report by a special committee on Clinical Instruction; a report on a proposed Materia Medica List by a special committee; the report on a paper presented at the St. Louis meeting by Mr. Abraham Flexner of the Carnegie Foundation for the Advancement of Teaching; and some special papers on such subjects as the Regulation of Medical Colleges, Necessity for Establishing a Rational Curriculum for the Medical Degree, and others, by men eminently qualified to prepare papers upon such subjects.

These topics are all of practical and vital interest to medical colleges, medical examining boards, the profession at large and the public. The symposium will be composed of ten papers and be presented from the viewpoints of State, law, *medical colleges, state medical examining and licensing boards and the medical profession*. The contributors of papers to the symposium on State Control of Medical Colleges are men of the highest attainments. The chief object of the symposium is to determine, as far as possible, the feasibility of placing medical colleges under State control. The special committee on Materia Medica made a report at the St. Louis meeting of the Confederation June 6, 1910, and it was continued and instructed to report again at the next annual meeting of the Confederation in 1911. The report of this committee made at St. Louis has received very favorable comment by many of the editors of medical journals, and should receive at the Chicago meeting extended and careful consideration. The report on Mr. Flexner's paper is published in the Proceedings of the St. Louis meeting of the Confederation, page 64, and will be open for discussion at the Chicago meeting.

**The Sixth Annual Meeting of the Ohio Association of Medical Teachers** was held at Columbus, December 27, 1910. A very interesting program was presented. The address at the banquet in the evening was given by President W. M. Thompson of the Ohio State University.

**The Council of the City of Toledo** appropriated \$1,000.00 Monday evening for the purpose of acquiring a city bacteriological outfit to be used in connection with the city health department. The Toledo Academy of Medicine and the Federation of Women's Clubs were represented in the lobby for the appropriation. Benefit in the quick examination of food stuffs for bacteria, and in medical work is promised through this city innovation.

**The Muskingum County Medical Society** met at Zanesville, December 14. The program was taken up with the reports of visits to the



clinics of Chicago, by R. B. Bainter; to those of New York, by C. U. Hanna, and of a three months' trip abroad, by F. S. Baron. C. H. Higgins reported a case of Meckel's diverticulum, with successful operation of the case and showed the specimen. G. Warburton and E. M. Brown reported cases of infected hands. Resolutions were drawn up commending the action of the State Board of Registration for their action, taking in the prosecution of criminal abortion from Montgomery County, and copies of the resolutions were sent to the Appellate Board.

**The Eighth Councilor District Medical Association** held the seventh annual meeting at Zanesville, November 25, 1910. At the morning session C. F. Hoover, Cleveland, conducted a medical clinic on the first floor of the Good Samaritan Hospital, while J. H. Jacobson, Toledo, gave a surgical clinic in the operating room. Lunch was served by the Sisters of the Good Samaritan Hospital. The program at the afternoon session was as follows: 1. Septic Infections of the Extremities, Edward Ochsner, Chicago. 2. Syphilis of the Central Nervous System, C. F. Hoover, Cleveland. 3. Treatment of Abortion in Private and Hospital Practice, Geo. W. Kosmak, New York. 4. A Tuberculosis Sanitarium for the Muskingum Valley, E. C. Brush, Zanesville. A banquet at 6 p. m. at the Parish House of St. James Episcopal Church was given by the Muskingum County Medical Society. At the evening session addresses were delivered by R. E. Skeel, Cleveland, President of the State Society; D. J. Price, Newark, and I. W. Keenan, Cambridge. The following officers were elected for 1911: President, A. R. Cain, Cambridge; Secretary, W. E. Wright, Newark. The next meeting will be held at Cambridge.

**The Lorain County Medical Society** held the annual meeting and banquet at the Hotel Andwur, Elyria, December 13, 1910. C. A. Hamann of Cleveland was the guest of the evening and addressed the society.

**The Ladies' Auxiliary of the Elyria Memorial Hospital** gave a banquet at the Country Club December 16, 1910, to the Surgical and Medical Staff and the Board of Directors of the Hospital. H. F. Biggar and N. S. Scott of Cleveland were present and addressed the meeting.

**The Staff of the Elyria Memorial Hospital** held their regular monthly meeting at the hospital December 19, 1910. E. E. Sheffield read a paper on Good Facts which Every Citizen Ought to Know.

**The Barnard Free Skin and Cancer Hospital** has recently completed its new hospital (St. Louis Skin and Cancer Hospital). An Club on January 6, 1911, in honor of Dr. Lewellys F. Barker who gave the address at the annual meeting of the Society.

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### Deaths.

**Hugh L. Ferguson**, Plain City, Ohio, died December 11, aged 75.

**Frank W. Rodgers** Findlay, Ohio, died December 18, aged 47.

**Cornelius Corboy**, Sardinia, Ohio, died December 5, aged 52.

**Joseph C. Rauth**, Upper Sandusky, Ohio, died December 8, aged 35.

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## Typhoid Fever in Cleveland in Relation to Pollutions of Lake Erie.

By R. G. PERKINS, M. D., Professor of Hygiene and Preventive Medicine, Western Reserve University, Cleveland.

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The large amount of typhoid in our American cities is a matter of national reproach, and Cleveland is not free from her share of responsibility. Since records began to be taken there is no year in which the proportion of typhoid deaths to the 100,000 has not been large, especially in comparison with cities of like or greater population in other lands. Marked improvement has taken place in the last few years, but with the growth of the population, the increasing use of Cleveland as a center for conventions and the ambitious plans for the future, it has become imperative that no check should be put on these activities through unsanitary conditions in the city. If conditions favoring epidemic development should arise during one of these conventions and a large amount of disease attributable to the Cleveland food and drink supplies should follow, it would be a serious matter. Recent examples of this possibility have been shown in

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*Read before the Academy of Medicine of Cleveland, January 20, 1911.*



Rutland, Vt., and elsewhere, and the decision of the Minnesota courts that municipalities are civilly responsible has a wide financial bearing.

In view of these facts the Board of Health recently appointed a Water Committee to ascertain the exact relations, as far as was possible, between the city water supply and the typhoid fever known to exist in Cleveland. The city records of all sorts were made accessible, and every courtesy was offered the writer by the various departments concerned, notably the Health Department, the Waterworks Department, the Engineering Department and the Bacteriological Laboratory. The result of the investigations was embodied in a report to the Board of Health, somewhat amplified in the present paper.

For clearness, a brief note on the past and present water supply of the city, and the development of the sewer system, will be valuable.

#### WATER SUPPLY.

Previous to April, 1904, the whole supply was taken from what is known as the West Side crib, lying about a mile and a quarter from shore, and about a mile west of the mouth of the Cuyahoga River. The connection with the West Side pumping station at Division street is through two tunnels, one five feet in diameter, the other seven feet in diameter. The tunnels are below the level of the bottom of the lake, here some 38 feet deep. The total capacity, with certain modifications now in prospect, will be about 150,000,000 gallons in 24 hours.

At the time of construction the city to the westward was not heavily built up, and the sewage from that portion discharged through a main sewer into the west arm of the government breakwater (Chart 1) so that the flow was necessarily to the east and the intake was well protected. Owing to the lack of actual flow there was a collection of sewage within the west arm, the development of a sort of septic tank with accompanying nuisance, and to relieve the condition a gap was made in the breakwater. The sewage then passed into the lake rather less than a mile from the intake, and this condition obtains at present.

The dangers from the arrangement were obvious and another tunnel was planned, nine feet in diameter, with an intake some four miles from shore opposite the mouth of the river and the regular opening in the breakwater for the passage of vessels. From this the water was to pass to the Kirtland street





a mile or so to the west of the present crib, where the water would be of about the same quality as from the present intake.

#### SEWAGE DISPOSAL.

The sewage system here is of the combined type and has undergone various modifications in the past years. The most important of these is the construction of an intercepting sewer passing along the entire lake front, with collateral branches, so that all the sewage will be carried to a point far to the east of the city, where it will discharge through an underground channel to a point a mile out in the lake. For various reasons the construction has been slow and although begun some eleven years ago, it was not until 1907 that the first sewage passed out through the submerged outlet. The present condition is well shown by Chart 1, by which it may be seen that the sewage from the eastern and northern part of the city passes through the submerged outlet, that from the northern and western part passes through the old outlet into the west wing of the breakwater while the rest passes by various mouths into the Cuyahoga River. At various points in the new interceptor there are overflows for storm conditions and all the sewer mouths, as indicated on the map, will ultimately be the exits for such storm water. It will be readily seen that until the branches from the southeast and southwest parts of the city are completed, the greater part of the sewage will flow into the river. Calculations from the Engineering Department give the approximate figures as 40% for the part taken by the east branch of the interceptor, 8% for the part flowing into the west breakwater, and 52% for the part discharging into the Cuyahoga. As the daily consumption of water by the city runs from 65,000,000 to 100,000,000 gallons a day, the amount entering the various sewer districts in dry weather conditions may be readily estimated.

#### CONDITIONS IN RELATION TO TYPHOID BEFORE 1904.

It is obvious that the change in the source of the water supply was a marked improvement and examination of the mortality from typhoid per 100,000 since 1873 is a proof of it. The typhoid history of Cleveland falls into two main groups, before the change and after it. Before the change there were only two years in which the rate fell below 30, and in 19 years the rate was 50 or over. In 1881 it was 96, and in 1903, it was 108.5, or in other words more than one person per thousand of the actual population in Cleveland died of typhoid. Since the change the highest recorded rate has been 20.

While this was very satisfactory, the rate still remains much higher than that obtaining in the cities abroad, such as London, Hamburg, Paris and Munich, none of which have had a rate in the last 10 years of more than 12. Munich, formerly a typhoid center with a rate as high as 200, shows an average of four since 1896, Hamburg and Berlin an average of five. The city was growing rapidly and it was decided to call in expert advice, with the view of taking measures for the future. In 1904, Mr. Geo. C. Whipple, of the firm of Hazen & Whipple of New York, was called in to make a complete survey of the conditions. For some time he conducted a very careful and elaborate series of investigations, in the course of which he showed so clearly the relative condition of the water in the different parts of the lake, the relations of currents to the weather conditions, the changes in the vertical currents due to changes in temperature, and other points of importance that his work along these lines has been accepted and no attempts have been made to repeat it. His general conclusion was that the water at the new intake was for the present safe, and that the condition would be further improved by the completion of the intercepting sewer, but he was careful to emphasize that the safety was not absolute, that growth of the city would increase danger of pollution, and that in his opinion filtration must ultimately be resorted to. It now becomes apparent that he was correct in his opinions and that the only miscalculation was in the probable growth of the city.

#### PRESENT CONDITIONS IN RELATION TO TYPHOID

Since the change in the water supply the typhoid rate has never been above 20 per 100,000, the figure to which it fell in the second half of 1904, after the complete installation of the new supply. After that it continued to fall with some regularity until 1908, when it was just over 12, but since then it has risen steadily until the rate for 1910 was found to be 19. Charting of the incidence and mortality since 1892 shows that before the change in the water supply there were at least two epidemics yearly, one in winter, about the time of the breaking up of the ice, the other in the late summer and fall. After the change there was for some years a disappearance of the winter epidemic and a marked decrease in the height of the curve in the fall epidemic, but in the last three years the picture has changed. There has been a steady rise in the fall curve, but what is more important, the winter epidemic has returned, and under cir-



cumstances which, as will be later noted, are strongly in favor of a water infection. It must of course be always kept in mind that *all* typhoid is not water-borne, but that many other agencies such as milk, flies and contact, are sharers in the guilt. Further there can be no typhoid of central water supply origin unless there are typhoid excreta contaminating that supply. In fixing the responsibility on any one of these agencies it is necessary to exclude the others as far as possible. In the absence of an epidemiological staff which could follow up the individual histories it is next to impossible to get absolute evidence, but on the other hand the circumstantial evidence which is accessible is of nearly as great value, if properly estimated.

It will probably be accepted that the enormous drop in the typhoid incidence and mortality in 1904, permanent to the present date, was due to the change from a frankly polluted water supply to a comparatively pure one, and that the majority at least of the typhoid before that date was water-borne. The question at issue is, assuming this as granted, what relation has the present water supply to the present rate of 19 per 100,000? Our main indications of a pollution of a water supply are on the one hand the death rate from water-borne diseases, using the people of the community as tests, and on the other hand the presence of sewage bacteria and sewage chemicals, using the laboratory reagents as tests. If the typhoid is due in great part to the water, these two methods should bear certain definite relations to each other, and the evidence in both directions will here be brought forward to see if these relations exist.

#### NORMAL WATER OF LAKE ERIE AND SOURCES OF POLLUTION.

Correspondence shows that authorities, who are in a position from actual personal work to know the conditions, agree that the waters of the Great Lakes, where sufficiently distant from human pollution, are of good quality, and should contain no fermenting bacteria. Further correspondence with prominent bacteriologists shows a prevailing opinion that over 90% of all organisms in water which are able to ferment lactose with the formation of gas belong to the group of intestinal bacteria. This agrees with the results obtained at the City Bacteriological Laboratory in the last few years and with my personal experience, so that although at certain times there has been insufficient help in the laboratory to carry out the differential diagnosis of the lactose

fermenters I have assumed that when these were present, sewage contamination was thereby indicated.

The *sources of pollution* may be divided into two groups, those arising *outside the city* and suburbs, and coming from communities along the shore or on the watershed of the rivers, and those arising *within the city* and its suburbs as far as they are connected with the sewage system.

#### POLLUTIONS ARISING OUTSIDE THE CITY AND SUBURBS.

Examination of the map of the district about Cleveland (Chart 2), shows that there are a number of streams flowing

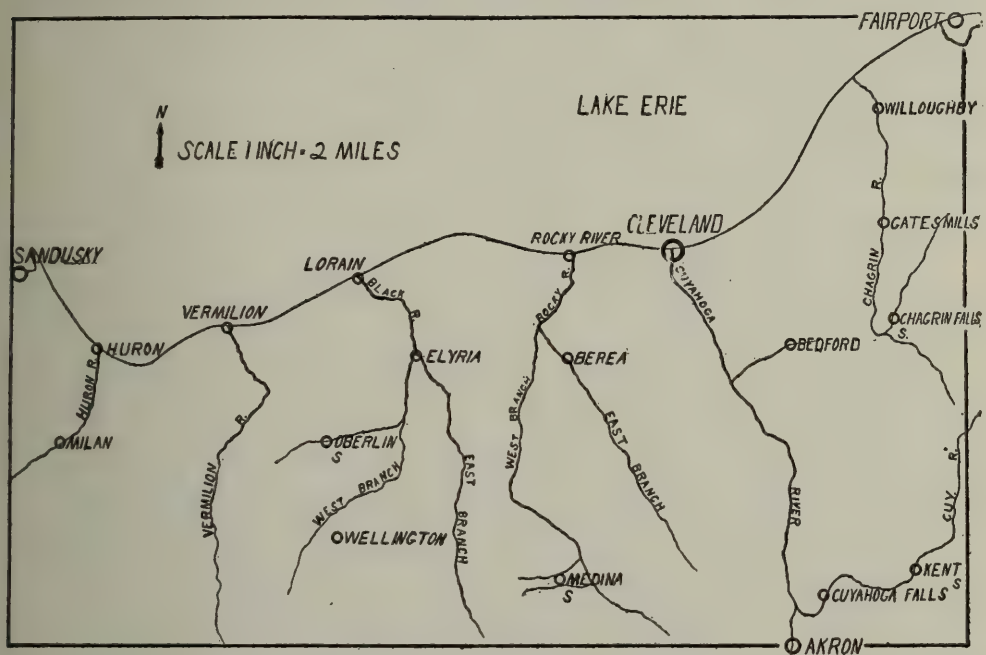


CHART 2. Map of Northern Ohio, showing the watersheds and cities. Those marked S have sewage disposal.

into the lake within 60 miles to the west, and that on these streams and on the shores of the lake there are a number of communities. The only community of any size at present to the westward within 30 miles is Lorain, Sandusky being fully 60 miles away. There are, however, several good sized towns on the rivers, and notably Akron on the Cuyahoga, some 40 miles away. Only those where the name on the chart is followed by an S have any form of sewage disposal, the rest passing the sewage direct into stream or lake. Owing to the configuration of the coast line, and the enormous dilution undergone by the sewage, together with the time factor introduced by the distance in miles, the probable danger *at present* from the towns on the shore or on rivers



other than the Cuyahoga may be considered as minimal, but there is constant growth and development, more and more rapid as time goes on, and with increase of the riparian population, dangers of pollution of the lake water increase. The fact that the lake is a boundary line between Canada and the United States makes the possibility of legal measures against such pollution remote. On the Cuyahoga the main cities are Akron, Cuyahoga Falls, and Kent, of which the latter has a sewage disposal plant with sand filtration. At Akron in the last year there has been a serious typhoid epidemic and while sewage disposal plans are under consideration, it will be years before the river is protected. All these dangers, while by no means to be underrated or neglected, are so much less in degree than those caused by local conditions that for the present we may omit them from consideration.

#### POLLUTIONS ARISING WITHIN THE CITY AND SUBURBS.

These may again be divided into those on the one hand which discharge directly into the lake at some point along the banks and those which enter the Cuyahoga River. At the time of Whipple's report sewage was discharged from all the outlets shown in Chart 1, except the most easterly. Since then the changes are as noted before, and result in moving the discharge of what had formerly entered at a number of outlets along the lake bank, east of the river, to a point further to the east. In other words, the conditions are very slightly changed, as the major part of this sewage always tended to pass out of the east end of the breakwater and was consequently always comparatively unimportant. At present then, the 40% of the sewage which enters the lake to the east of the river may, on the same basis as the pollution from Akron, etc., be temporarily neglected. This leaves two main portions discharging into or west of the river. The discharge to the west, only eight percent, would in itself be of small account were it not that there is a strong tendency on the part of the river when in flood to suck out the water from the west arm of the breakwater and to carry it to the north towards the intake.. The mass of the pollution, at least 52%, passes into the Cuyahoga, and it is worth noting that this sewage comes from the least sanitary parts of the city, the districts where typhoid from other causes than water is most apt to be endemic and where the doctor is less frequently called in. In addition to the known sewage there is a large amount of

gross pollution from the shipping in the harbor and in the river, which can never be adequately controlled, and an additional pollution from various trade wastes from the industries along the river, such as the Standard Oil Co. works. These last, as well as the pollutions from higher up the river, will not be removed even at the completion of the contemplated interceptor, leaving the river still a polluted stream.

The result, as far as the river is concerned, is that the stream is nothing more than an open sewer, and with the many docks and side branches, forms a series of septic tanks where active putrefaction may be seen and smelt in the summer months. The odor is so offensive that the lake passenger boats are trying to make arrangements to dock outside of the river, partly on account of the complaints from the passengers. This collection of putrefying material, to which are added trade wastes of various types, some of them of such a character that the surface of the river has been several times in flames, is always present except immediately after floods have swept it out into the lake to make room for a new supply.

Daily tests since 1904 in the City Bacteriological Laboratory show that while the findings of lactose fermenting organisms in the first period following the change in the water were few and far between, they have of late years markedly increased, so that it is rare to find a week when there is not at least one day with fermentation in the 10 c.c. lactose-bile fermentation tube. Chemical tests over the same period, though not as frequent, indicate irregular pollution by chemicals characteristic of sewage. We have then the *gross pollution of the lake some four miles from the intake, and the laboratory indication that this pollution reaches the intake at least part of the time.* The next step is to find the various influences which have a bearing on the degree and the frequency of the pollution.

#### CONDITIONS LEADING TO INCREASE OF THE POLLUTION.

The facts so far noted indicate that the main source of the pollution is the Cuyahoga River, and the alterations in conditions will be considered primarily from that standpoint. The Cuyahoga rises to the northeast of Cleveland, near Chardon, and passes in a wide arc to the south and west before it turns to the north toward the lake. The watershed is quite extensive, mainly farm land, but draining also several towns and villages, the most important of which are Kent, Akron and Cuyahoga Falls. The



banks are steep in the latter part of the course, and the woods have been pretty well removed, so that any marked rainfall in the watershed will reach the stream quickly, and sweep down with great speed. Records of the height at Independence, some miles above Cleveland, show very marked variation, from almost no water in dry periods, to practically flood conditions after heavy rain or after thaws. At the lower part, the river is a fresh water estuary and its level is determined by the level of the lake which is again determined almost entirely by the direction of the winds. It is therefore evident that any variation in the amount of water entering the river will make a corresponding variation in the speed of outflow into the lake, especially if the change in volume is a sudden one. The 52% of the total sewage will therefore in times of heavy rain or thaw receive an impulse directly outwards towards the intake. After the water and sewage reach the lake there are other factors which enter into the calculations. The crib is directly opposite the opening of the river and the opening of the breakwater, and the normal tendency in the absence of the other factors would be a gradual diffusion and sedimentation in a sort of fan shape, so that before the four miles had been traversed the greater part of the sediment would be settled and there would be a sufficient time interval for the destruction of a large number of the bacteria. As shown by Whipple the currents in the bay opposite Cleveland are practically dependent on the wind so that on the prevalence of one wind or another would depend the trend of the sewage. South or southeast winds would obviously be most dangerous and inasmuch as the greater part of the rain comes with these winds, it may be seen that these two factors work together. On the other hand north or west winds tend to clear the vicinity of the crib from the local influences.

It must be remembered, however, that Lake Erie is shallow and that in case of a strong north or west wind there is a marked reverse undercurrent established which is also dangerous. When, therefore, there is the combination of a wind from the east or south, and a marked increase in the flow of the river we have excellent opportunity for the transfer of pollution to the drinking water. At times another factor is added to these. While the wind may be dangerous it also helps somewhat in oxidation of the bacteria by stirring up the water, and by establishing cross currents, horizontal or vertical, which modify the course of the

sewage and tend to its greater distribution. At times, however, this influence is completely removed by the presence of a solid sheet of ice over the lake both inside and outside the break-water. Under these conditions a sudden increase of flow of the river apparently tends to pass out directly north in a more or less unbroken stream, carrying the sewage directly to the intake.

The factors of safety then, are dry weather, absence of ice, and moderate north or west winds. The factors of danger are sudden increases of flow in the river, sheet ice on the lake, or south and east winds.

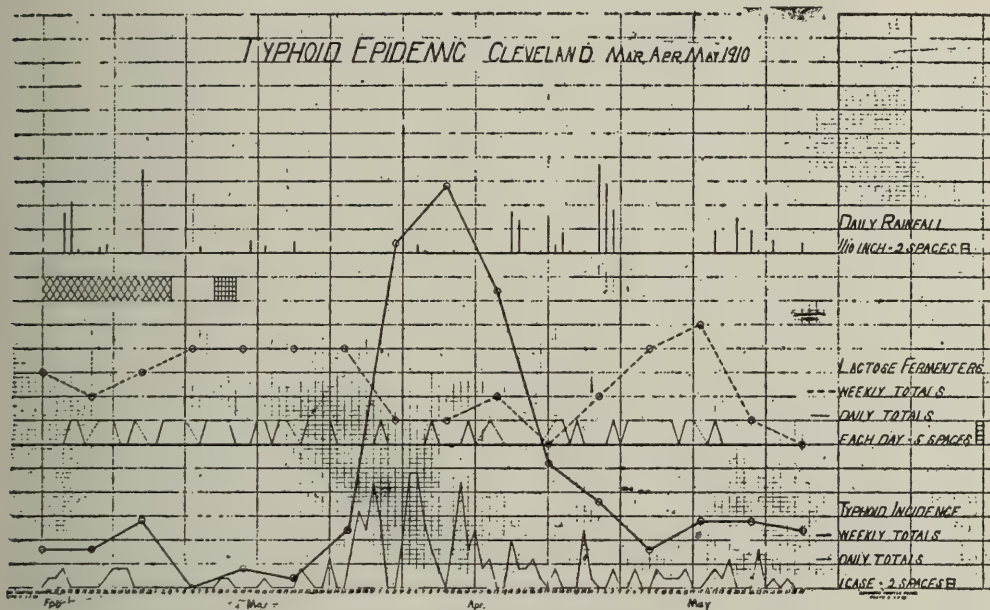


CHART 3. Epidemic of March and April, 1910, charted to show time relation between rainfall, thaw, breaking of the ice, laboratory pollutions and typhoid incidence. The rainfall at the end of February was associated with a thaw, causing a flood under the ice, which is indicated on the chart by a vertical and horizontal cross hatching. In 24 hours there was a taste and smell of the Standard Oil Co. products in the water, the colon findings increased, and in due time the epidemic followed. The diagonal cross hatching indicates fields of floating ice.

These factors can be readily theorized and it is necessary to correlate them with the facts relating on the one hand to the indicated pollution and on the other to the water-borne diseases.

If the premises are correct we should find that when the danger factors are prominent we have increase of laboratory pollution, and increase of typhoid. An additional factor must here be considered, that there must be the discharge of typhoid



excreta in the river at the time of the development of the danger factors.

Chart 3 relating to a single winter epidemic, is typical of the whole chart for the nine years (which is too large for publication) and shows at least an apparent relation between rainfall, colon bacilli findings, and typhoid incidence. Taking this as a representative epidemic and keeping in mind the incubation period of typhoid we see that in general a heavy rain lasting one or several days is followed by an increase in the turbidity and in the chemical and bacteriological pollutions. After two to three weeks there is a rise in the typhoid incidence, though during the actual course of the epidemic the water may be of unusual purity. The length of time between infection of the water and the development of the epidemic is of course due to the fact that as a rule, cases are not reported for eight or ten days after onset. When the town is riddled with typhoid and especially in the summer when flies are active the distribution is too great to allow us to get accurate etiological data, but there are at least two small epidemics with so sudden a rise and fall as to suggest some central cause, and these have been further analyzed.

#### EPIDEMIC OF MARCH AND APRIL, 1910.

This is perhaps the most characteristic, as it occurs in a fly-free time, and has an almost vertical rise from a period of comparative freedom from disease. Addresses of all the cases from the first of January to the end of the epidemic were obtained, and charted on a map of the city as shown on Chart 4. The line dividing the city in two parts is the same already noted on the sewage disposal plan, indicating that all sewage from the area north of the line passes into the lake at Marquette street or at the end of the interceptor, while the sewage from the area south of the line enters the Cuyahoga for the most part, only a small area draining into the west breakwater sewer. The black circles with white center indicate the cases of typhoid which had been reported from the first of January to a date two weeks before the outbreak of the epidemic, or in other words are the endemic cases which were discharging typhoid bacilli into the sewers. It will be noticed that the majority lie in the Cuyahoga drainage area. The circles with white center and black cross-bar are the endemic cases occurring in the last few days before the outbreak, and so of too recent origin to be considered as

undoubted factors. It must be remembered of course that perhaps some of these had already been ill for some time, and that there may very probably have been other cases, but all we have to go on is the actual record as obtained through the Health

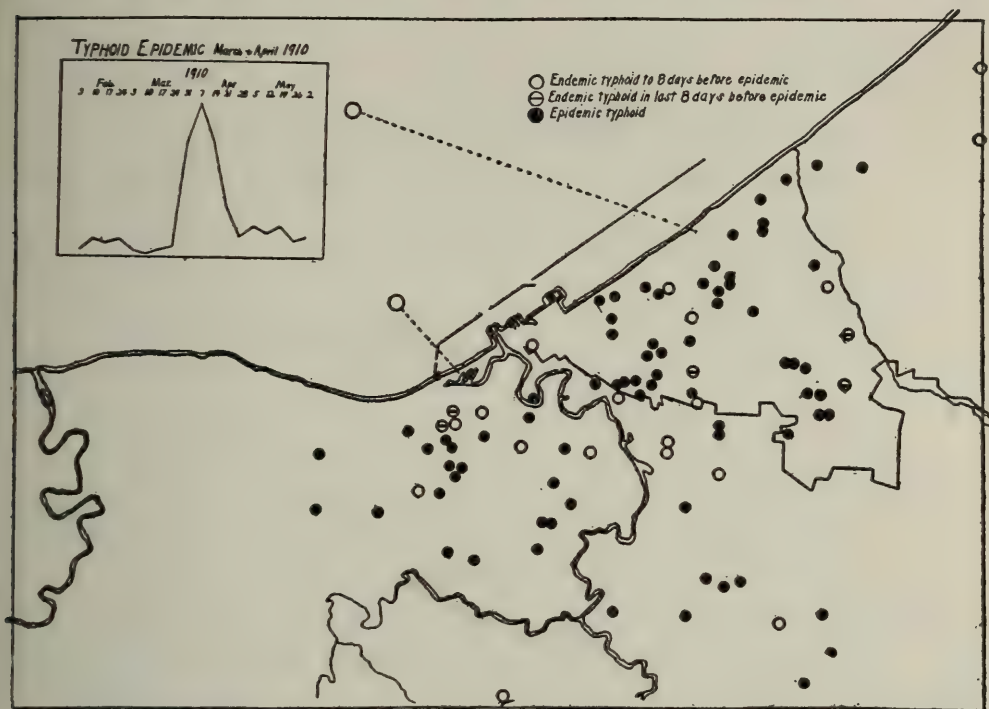


CHART 4. Epidemic of March and April 1910. Area north of heavy line drains into the interceptor, south of it into the Cuyahoga or the west breakwater.

Department from the reporting physicians. The solid black circles are the cases in the explosive epidemic as seen on the chart, occurring from the beginning of the rise to the beginning of the fall in the curve, to indicate the general distribution over the whole city without regard to location, or to the character of the district.

One of the very important points in regard to this especial epidemic is that at the time of the gross pollution of the water there was at the same period definite evidence of the presence of wastes from the Standard Oil Co. works which could have come only from the river, showing beyond doubt that *river water in large amounts can reach the intake under favorable weather conditions.*

#### EPIDEMIC OF SEPTEMBER, 1906.

This epidemic is treated in a similar way and while on account of the season and the consequent chances of infection



other than by water there are several points of value. As will be noted by Chart 5, showing the rise and fall of the epidemic there are two distinct rises, the former somewhat lower than the latter, and the preepidemic cases cover this first rise. It will be noted that the majority of the cases before the outbreak are in the Cuyahoga drainage area, and that the afterdistribution is general.

In this outbreak perhaps better than in the first it was readily seen that the great majority of the preepidemic cases

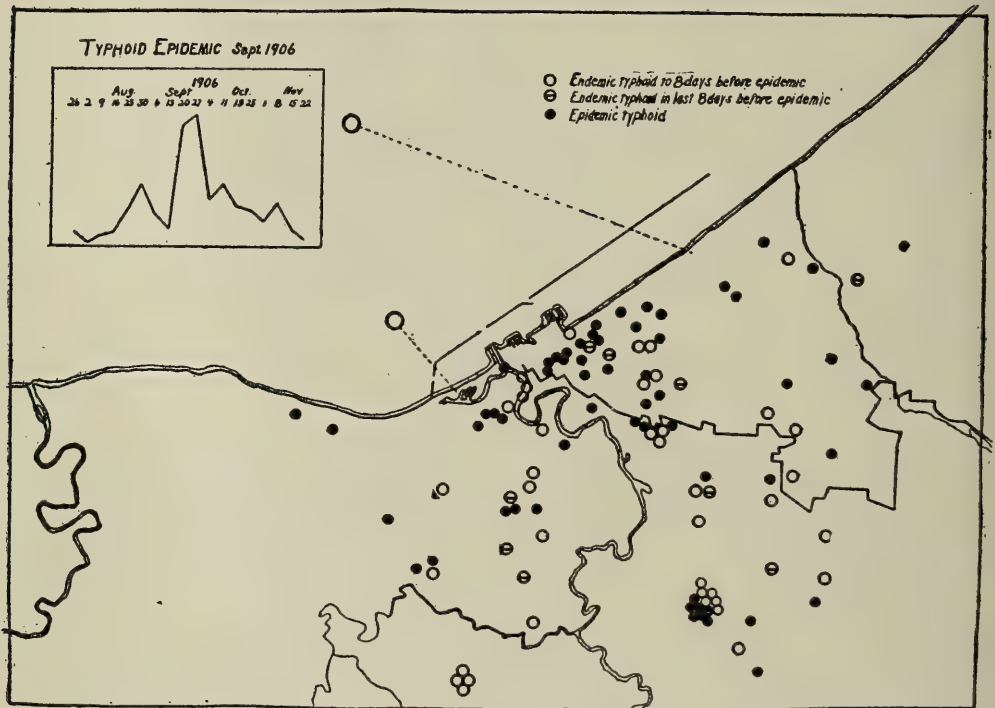


CHART 5. Epidemic of September, 1906. Indications same as on Chart 4.

are in the poorer districts, along the railroads, where opportunities for local contagion are best, and this, in connection with the study of the general chart, would indicate that in all probability the *endemic* typhoid is *not water borne*, but due to some of the other etiological factors. It must be freely admitted that the evidence is circumstantial in the absence of detail as to the factors in the individual cases, but the distribution in the less hygienic quarters during the interepidemic periods, the general distribution in the epidemics, and the evidence in many cases of house-to-house and person-to-person infection are at least strongly suggestive. One group in the southern part of the town in the

second epidemic is of this last character, though here again the evidence is circumstantial. As noted on the chart there were in the course of 30 days 13 cases in close neighborhood, several following in the same house, and *probably* with no connection with the water supply.

But the main lesson to be drawn from this interepidemic or endemic typhoid is that *as long as it continues to exist, and as long as the sewage from the cases can possibly reach the intake, so long will the combination of weather conditions above noted make a new epidemic probable*. The chain is complete—typhoid draining into the river, the contents of the river being able to reach the crib and the water from the crib being used without treatment. We have therefore always the potentiality of an epidemic and the conditions favoring it are at present entirely beyond our control.

#### INDICATIONS FOR THE FUTURE AND POSSIBLE REMEDIES.

If the evidence as brought forward is of value the future development of the question is more or less self-evident. The population is constantly on the increase, as is also the population of the neighborhood, and the consequent discharge of sewage into the lake and its tributaries is therefore larger each year. Even with the completion of the interceptor the river will continue foul, and with the increased pollution to the west the lake water along the shores will be more and more polluted. The water from the projected West Side intake will be subject to the same contamination though perhaps in less degree than that from the present crib, and there is little doubt that the rate per 100,000 for the typhoid fever will steadily increase unless measures be taken to prevent it.

There are two conditions of the water, as at present supplied, which need improvement. These are: 1. *The presence of disease producing organisms*. 2. *Turbidity and presence of trade wastes*.

The turbidity has attracted less attention on account of the other factor but is really serious. Owing to floods in the river, wind disturbances of the lake, and the fine silt carried out from the shores by wave action, there are frequent periods in each year when the water, as drawn from the taps, is dark in color, with a very high degree of turbidity, and leaves such a sediment



on standing as to be unusable for ordinary household purposes without treatment. Investigation shows that the zone of turbidity extends some miles beyond the present intake, and that the settling is very slow, so that the turbid water is moved back and forth by the winds often for many days. As a result there is turbidity of the water for a total period of over two months every year. Owing to the slow settling of the type of sediment found in the water, sedimentation is impracticable, and the only means of removing the condition is filtration, of whatever type may be found most suitable. Owing to its natural lack of color the water of the Great Lakes is readily treated and gives excellent results on filtration. It will, however, be years before the municipality can complete and operate a filtration plant and in the meanwhile some thought must be given to the control of the other condition, the presence of disease producing organisms.

In the absence of filtration the only solution is disinfection, whether applied in the individual household or centrally. Since so much water, especially in summer, is taken for drinking directly from the taps, a central method seems preferable.

Two methods are commercially practicable, and in use at various places, and either would be efficient here if properly applied. These will be briefly mentioned merely for the sake of completeness and because they were embodied in the original report.

*Ozone:* The method depends on the passage of an electric arc through dry air, and the mixing of this ozonized air with the water to be sterilized. The method is effective but has the disadvantages of needing expensive apparatus and expert attendance. The first cost is very high, and the method is not as yet fully standardized. The active agency is the nascent oxygen.

*Chlorin:* The method here depends on mixing a chlorin-containing solution with the water in certain definite proportions. The so-called *available chlorin* may be obtained in a variety of ways, the cheapest being probably from the solution of the ordinary bleaching powder. This has about 35% of available chlorin and inasmuch as the proportion needed to kill all organisms of the typhoid or dysentery type is 1 to 1,000,000 or less, the amount necessary is not large. The prevailing idea is that the action is the same as with ozone, the free chlorin forming such chemical combinations as to liberate oxygen. The original outlay is less, the apparatus is much simpler and it requires no ex-

pert to run the machine, or even to make the necessary chemical tests. On the other hand there is a fairly large amount of sludge which must be disposed of and the freight on the raw material must be considered. The method is in use in a number of cities with great success and an experimental apparatus is now being constructed in Cleveland to find the exact amount necessary for treatment of the Cleveland water.

The use of one of these methods of disinfection of the water would eliminate the typhoid and dysentery from the central source and make the residual cases more easily controlled. Furthermore it appears to be the opinion of the men concerned with large filtration plants that there is still danger, even after filtration, that some pathogenic organisms will pass through, and many of them are using or contemplating the use of disinfectants together with the filtration. It must also be considered that the increase of expense in building a filter which will hold back bacteria over the expense of one that will merely clarify the water is very large, and that if disinfection is considered in the primary plan, the whole expenditure may be largely reduced.

#### SUMMARY AND CONCLUSIONS.

1. The waters of Lake Erie for several miles north of the present intake are subject to sewage pollution and pollution from trade wastes.
2. These pollutions depend largely on weather conditions, notably such as cause increase in the flow of the Cuyahoga River, for the direction and extent of the area involved.
3. Present sewage outlets discharge over one-half of Cleveland sewage into the river.
4. Pollution will be decreased but not removed on completion of present sewer plans.
5. Many if not all of the distinct epidemics are caused by the water.
6. The interepidemic or endemic typhoid is probably not water-borne.
7. Turbidity can be removed only by filtration.
8. Danger of infection can be removed only by filtration or disinfection.
9. It is recommended that plans for filtration of the supply should be prepared and that in the interval the water should be disinfected.



## The Legal Duty of Physicians to Report Venereal Diseases.

By R. B. NEWCOMB, M. D., LL. B., Cleveland

Many years ago a law was placed upon the statute books of Ohio, relating to the duty of physicians, and requiring them to give notice of the prevalence of infectious diseases. That law contains at least one substantial defect: it enumerates specifically certain diseases, and then undertakes to encompass the others by a general clause covering diseases dangerous to public health. The statute is as follows:

"Section 1536-738, Revised Statutes, Section 2125. (Duty of physician, house owner, etc., to give notice of prevalence of infectious diseases; duty of board thereafter). Every physician or other person called to attend any person who is suffering from smallpox, cholera, plague, yellow fever, typhus fever, diphtheria, membranous croup, scarlet fever, or typhoid fever, *or any other disease dangerous to the public health*, or required by the state board of health to be reported, shall report the same to the health officer within whose jurisdiction such person is found, giving in such report the name, age, sex and color of the patient, and the house or place in which such person may be found; and in like manner it shall be the duty of the owner or agent of the owner of a building in which a person resides who has any of the diseases herein named or provided against, or in which are the remains of a person having died of any such disease, and the head of the family, immediately after becoming aware of the fact, to give notice thereof to the health officer; and when complaint is made or a reasonable belief exists that an infectious or contagious disease prevails in any house or other locality which has not been reported as hereinbefore required, the board shall cause such house or locality to be inspected by its health officer, and on discovering that such infectious or contagious disease exists, the board may, as it deems best, send such person so diseased to a quarantine hospital or other place provided for such persons, or may restrain them and others exposed within said house and locality from intercourse with other persons, and prohibit ingress and egress to or from such premises. (66 v. 202, Sec. 312; (S. & S. 831); R. S. of 1880; 95 v. 427).

The indefiniteness of that clause "or any other diseases dangerous to public health," properly gives rise to the query whether or not it has application to the venereal diseases.

Unquestionably, the venereal diseases, syphilis and gonorrhea, are dangerous diseases, and in the broad sense, they are dangerous to public health. But the danger to public health cannot be regarded in the same sense that smallpox and yellow fever are dangerous, because a very small proportion of the male population can be said to be innocent in the acquisition of a venereal disease.

While it is true that gonorrhea or syphilis does exist in some males, when there has been no sexual relation, and they

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*Read before the Medicolegal Section of the Academy of Medicine of Cleveland, December 30, 1910. (Discussion on page 71, January issue.)*

are therefore innocent sufferers, the proportion is certainly very small.

The right to classify the venereal diseases as dangerous seems to be, in the opinion of most writers, based upon the fact that women and their offspring are the innocent sufferers by the male offender, and these innocent sufferers can be counted by the thousands in every large city.

If a legal opinion were sought on the proposition whether or not the foregoing statute fixes a legal duty on physicians to report venereal diseases, the same as they now do scarlet fever and the like, it is almost certain that lawyers would agree that the law-making body never intended that this statute should have application to the venereal diseases; that therefore, no conviction could be had of any physician who failed to so report. Nevertheless, I am equally certain that if any physician did so report a venereal case, no action at law would lie against him, not alone on the ground that truth is a defense in a suit for libel, but because the statute, in its general terms, would offer a reasonable excuse.

Had the Legislature of Ohio intended this law to cover venereal diseases, it is reasonably certain, considering the wide prevalence of these diseases, that some specific mention of both syphilis and gonorrhea would have been made. Under a somewhat similar law, the New York Board of Health has refused to classify venereal diseases as contagious.

A few years ago a bill was introduced in the Legislature of Iowa, by which State control was sought of the sexual diseases. It provided that syphilis and gonorrhea shall be reported as other contagious diseases, to the County Board of Health, and furthermore, it provided that it shall be the duty of every physician and surgeon practising within the State of Iowa, to report to the County Board of Health within 24 hours, every case of syphilis and gonorrhea coming to his knowledge. It provided, further, a somewhat rigid system of quarantine and medication. This bill raised a vigorous discussion among the medical men throughout the State, and was opposed by a large proportion of the medical fraternity. One practitioner said: "It is safe to say that no reputable practitioner will report to any official body, or any person, syphilis or gonorrhea affecting any of his patients. The record of such a board would form the basis of so many actions for divorce, that additional courts would have to be



established to hear them. Families would be disrupted and children left to grow up with no parent. The victims, fearing publicity, would either undertake to treat themselves, or resort to quacks and charlatans, and thus multiply the dangers. As long as men are constituted as at present, so long will the pre-marital and extra-marital coitus be practised. As long as a certain number of females are prostitutes, so long will they offer themselves to men for hire. Before the sexual millennium dawns, these males and females will disseminate venereal diseases, regardless of any laws that may be placed upon the statute books."

But because the law books of Ohio are absolutely silent upon this subject in any form, it does not follow that legislation is not needed. The experience of other States, and especially foreign countries, has shown that much practical benefit has been obtained. One writer has said that the voluntary purity of one generation would forever break the link between the past and the future, and gonorrhea and syphilis would be abolished. Scandinavia has more or less completely organized the system of putting venereal diseases under the common law and dealing with them as with other contagious diseases, so that every one affected, whatever his social or financial position, is entitled to free treatment. All doctors have their instructions in regard to such cases, and the patients cannot marry until cured. Furthermore, they are liable for the expenses of treatment and damages suffered by anyone they may infect.

The laws of Germany seem to recognize that education is the best cure. A lecture system is carried on regularly at all centers of population, and in fact wherever young persons can be gathered together. These lectures are given by medical men, and are free to all, only males of 16 and over being admitted. By this system, the duty of the parent to instruct his child in one of the most important functions of life is shifted, and the young men of Germany know the dangers of venereal diseases upon the threshold of manhood, and that information is imparted by learned men, well qualified to give it.

It should be the business of the general educational authority in every civilized community in this country, to provide lectures based upon the German system. The benefit would undoubtedly be wonderfully effective, and it seems to be the only sensible way to go about it.

There is much criticism by foreign writers of the absolute

failure in America to regulate or control in any way the spread of venereal diseases. The freedom enjoyed in this matter in the United States is well illustrated by an American case quoted by Dr Dyer of New Orleans in his report to the Brussels conference in 1899, on The Prevention of Venereal Diseases: "A female patient, afflicted with syphilis, refused even charitable treatment, and carried a book wherein she kept the number of men she had inoculated. When I first saw her she declared that the number had reached 219 and that she would not undergo any treatment until she had had revenge on 500 men. In a community where the most elementary rules of justice prevail, facilities would exist to enable this woman to obtain damages from the man who had injured her, or even to secure his conviction to a term of imprisonment, but as the law now stands, she is shut out from any action against the man who injured her, and in undertaking this mode of revenge, she becomes a radiating focus of disease."

There are hundreds of laws passed at every legislative session. The statute books today contain many thousands of laws, but not one pertains to the sexual diseases. We are blessed with a total absence of law, and in consequence a tremendous presence of disease. Some writers contend that no law can arrest its progress, and that a system of reporting cases would not in any way lessen the number. Another writer says that the day must come when the culture beds of the red light district shall be looked after as carefully as the drainage of stagnant pools of water, and that over the portals of every court house where the marriage license is procured, will hang the sign. "No health certificate, no license."

A few States, North Dakota, Michigan and Indiana, have laws designed to protect the innocent from venereal diseases. The Dakota law is unquestionably the best. That law requires all applicants for marriage licenses, first to present a certificate from a medical examining board of three physicians appointed by the County Judges, showing freedom from syphilis and gonorrhea, habitual drunkenness, insanity or tuberculosis. Here is the first effective effort of a State to protect its innocent women and the generation of children yet unborn.

Does the State protect marriagable women? On the contrary, the State subjects her to the hazard of bodily contamination, by ignoring absolutely the physical qualifications of its



people who enter into a contract of marriage. If the offspring are blind or diseased, the State spends its money to care for them, but the thought of striking at the cause is a new one to the legislative mind. Countless women and children are today innocent sufferers of a vile and loathsome disease, largely because of the absolute indifference of the State. No contract is more vital to the welfare of a community than the contract of marriage. It is in fact the very foundation of the nation's well being. The State places some restrictions on marriage. If it is contrary to public policy for first cousins to marry, even though they both be physically perfect, because their offspring might be undesirable material, it ought for far more potent reasons be unlawful for a syphilitic to marry. There are laws regulating divorce, and preachers spend their time decrying the laxity of our courts in granting divorces by the wholesale.

Several years ago a representative from this county, Charles Parker, son of a physician, introduced in the Ohio Legislature, a bill requiring medical examination as a necessary step to the procuring of a marriage license. That bill was laughed at and joked about all over the country. It was loaded up with witty amendments and then defeated. One old cynic said that it should not be expected that any body of law makers would pass a bill that would raise the matrimonial bars against themselves. The general legislative spirit is evidently against offering any obstacles to matrimony. On the surface, it would appear to be nobody's business but that of the man and the woman who tie up, but when the State pays annually her millions to support her asylums and other charitable institutions, she acquires some interest in the marriage question. While it must be conceded that many of the legal remedies suggested for the control of venereal diseases must fail because of the absolute impracticability and impossibility of their execution, nevertheless, two propositions force themselves upon us. First, what is the duty of the State to womankind? Second, what is the duty of the medical profession to womankind?

The State has power to protect the vital interests of wives and mothers and offspring by safeguarding the entrance to matrimony. Right here let me say this: I have no patience with the long haired men and the short haired women who are eternally shouting for woman's rights, but if there is any one thing that would induce me to line up with the modern

“suffragettes,” it would be a plank in their platform advocating some real practical protection for marriageable women, so that the marriage bed would be free from the taint of venereal disease. Whether or not our law makers, as at present constituted, would be favorable to such legislation or not, the fact remains that no such legislation has ever been enacted. The North Dakota law is the only one that gives assurance of successful operation.

Let us assume that in this county, the Common Pleas Judges would select a commission of three medical men, and let us assume these men to be representative physicians in this community, and therefore honorable men. How many innocent women and children in the course of a year would be spared a life of suffering and misery by reason of the rigorous qualification demanded of all male applicants for matrimony, especially on the question of syphilis and gonorrhea.

When we come to discuss the legal aspect of the physician's attitude toward womankind, we find it concerns him in two vital particulars. First, whether to conceal, for the patient's benefit, what knowledge he has acquired in his professional relation, and, second, whether to disclose that same knowledge for the general public welfare. There is no common law duty upon the physician to keep secret that which he has learned in attending his patient, and in many cases he is required by law to reveal it as a witness in court. Furthermore, there is no moral duty to protect a syphilitic patient as against an innocent third party, and it is undoubtedly the physician's duty to impart the knowledge to anyone about to be infected. One who deliberately proposes to spread contagion is entitled to no privilege.

Suppose a man enters a lawyer's office and states that he is guilty of a crime. The lawyer could, if that fact were disclosed to him in his privileged relationship, keep the secret forever silent, but if the man stated that he intended to commit a crime, then it would be the duty of the lawyer to publish that fact and do all possible to prevent it.

For the same reason, when the knowledge comes to a physician that a patient is afflicted with a venereal disease, and is about to marry, it is without question the duty of that physician to use every possible means to prevent the culmination of that intention, even though in so doing, he disclosed information



received by him by reason of his privileged relationship to his patient.

While the organic law of Ohio may not require venereal diseases to be reported, and until it discloses in clear and certain terms that the practitioner must report such cases, none will be reported, nevertheless there always exists the moral duty, and the physician is justified in disclosing the facts when he knows an infected person is about to enter matrimony, and carry contagion to an innocent person and perhaps to souls unborn.

*818 Society for Savings Bldg.*

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### The Reporting of Venereal Disease.

By FRANK OAKLEY, M. D., Cleveland.

It is undoubtedly the duty of the physician to obey and uphold the law to the best of his ability. Let us examine to see if the law requiring the registration of venereal disease is practical and whether it will serve the purpose for which it is intended.

The "social evil" and its consequences are subjects of the greatest interest and importance, affecting the happiness and health of the community and striking deep into the heart of our civilization. I need hardly refer to the history of past civilizations and the part played by licentiousness in their decline. We are to discuss tonight only a small part of this great subject. Armstrong has said, "The relation that any disease bears to the public health is in a direct ratio to its prevalence and its preventability." Please bear with me while I attempt to place before you the conditions as we find them today. Noegarth stated some years ago that 90% of males living in the cities had gonorrhea at least once during their lives. Lawson Tait, the great English surgeon, put his figures at 100%. Valentine thought Tait's estimate nearer the truth. I might quote authority upon authority with a range of from 80 to 100%. Concerning women, I have never seen any statistics quoted, but would say the percentage is much less. However, we do know that of all the women who go upon the operating table for operations upon the womb, ovaries, or tubes, 60% do so as the result of gonorrhea. Sad as the statement may be, in many instances the disease was

innocently acquired from an uncured gonorrhea in the husband.

From 30 to 60% of the blind, born into the world with healthy eyes, were made so by gonorrhea, contracted at birth by contact with diseased maternal passages or in later life by their own carelessness or ignorance. To this may be added the sterility of the male or female, loss of sexual power in the male and the interesting neuroses.

The percentage of syphilis is said to be about one to four of other venereal diseases. This is probably true of Europe and the large cities of America. In Cleveland the proportion is probably lower. I can speak only from my own experience, having no other statistics at my disposal. My office records show that syphilis is found in about 15% of all venereal disease. The remote effects of syphilis are more terrible than gonorrhea. As regards insanity, of the 900 cases admitted to the Cleveland State Hospital during the past two years, 10% were directly due to syphilis. In children born with an inherited taint a great number of chronic diseases may occur for which syphilis is given as a causative factor. Unfortunately the greater number of these patients acquire their disease between the ages of 16 and 30, at the beginning of adult life. Of these infections 25% are unmerited.

The American Army Report for 1904 shows that venereal disease was responsible for 16% of all admissions to hospital, 28% of all non-effectiveness and 18% of all discharges for disease. There were 7,106 cases of gonorrhea and 1,996 cases of syphilis. The number of sick days on account of gonorrhea was 146,609, of syphilis 70,398 and of tuberculosis 49,195. Syphilis was the cause for 166 discharges and tuberculosis for 101.

I think one would be safe in saying that for far reaching results upon both innocent and guilty, suffering, unhappiness and home breaking, the white plague is not to be compared with the black plague. Such is the condition in cities. I am sorry to say that the country villages and small towns are not exempt: the interurban trolley systems and the automobile are bringing them in close touch with the large cities. I am informed on good authority that one town of 1500 people in the southern part of this state has 17 young women syphilitics.

The medical profession cannot shift all the responsibility for this condition from its shoulders. We have failed to sound



loudly and persistently the note of warning. We have made light of gonorrhea—treated it with a joke until the young man thinks, as they often say, “I would just as soon have gonorrhea as a bad cold.” Until a few years ago these diseases were left to the advertiser and quack—it being considered “*infra dig.*” for any regular physician to give his attention to this branch of medicine; even today, we are sometimes called “clapp doctors” in derision.

Many of you will be surprised to learn that in this city there is only one hospital (the City Hospital), to which a syphilitic can be admitted. There they have only 24 beds for venereal diseases. Even the patient with gonorrhea has his troubles getting into most hospitals—so much for sentiment.

We all agree that any method that would restrict or prevent such a widespread and disastrous plague would be very desirable. In Europe and America certain methods have already been tried, and if we may believe the reports, all have failed. Medical examination of the professional prostitute has failed because it protects only one party to the act and gives to the visitor a certain supposed security, thereby increasing the business of the house known to be under medical supervision. If every woman with a suspicious discharge or a suspicious looking sore were segregated, inside of ninety days every professional prostitute in the city would be in the detention house or hospital. It was shown lately that out of 100 cases taken at random, all those who had been in the business for three years were infected by syphilis.

Our attempts at examination in America have been little better than a farce,—a weekly examination. To give some idea of the condition in Cleveland, one girl, a syphilitic under treatment, took in \$56.00 from Friday night to Monday morning, at \$1.00 per man. A certain house with five inmates took in \$342.00 during the same period. Of what value was the Friday weekly examination to the Monday victim?

In the high-priced houses of Russia a student or physician is in residence. It is his duty to examine every man, and to keep the women in a healthy condition. Supposing such measures were successful in preventing infection by the professional prostitute, how about the hundreds of semi-professionals, kept women, street walkers, and occasional offenders? Nobody knows anything about them, except a few intimate

friends and their victims. I know of no rule of medical ethics so religiously kept by the physician in good standing, and also by the advertising quack, as the one to keep secret any knowledge he may have acquired concerning the diseases of a so-called private nature. The quack even advertises, "All communications strictly private." Why? Because it pays, and because the people demand it. The physician and the priest are supposed to listen to confessions and remain as silent as the grave. There are times in the lives of physicians when their blood boils with indignation to see an innocent girl led to the altar by some man having an uncured gonorrhea or an incompletely treated syphilis. Often this man himself is aware of it and also knows that the doctor's lips are sealed. That there are men of high standards there is no doubt. I know of one young man who contracted syphilis a few months before his wedding day. As soon as he knew what he had, he broke off his engagement, without giving the real reason. He not only lost his sweetheart, but is considered a scoundrel or worse. One such case stands out as a bright spot on the otherwise dark background.

What is the primary object in reporting and registering venereal diseases? Is it to limit illicit carnal intercourse, or to protect the innocent? If it is the former, it will fail, because it strikes at the motive influence of animal life; the primordial reason for our being,—reproduction.

Please turn again to the history of our race and you will find that for a few thousand years the god Priapus held sway, and still numbers his devotees by the millions. This seems to be a question of morals and for the present efforts to restrict sexual relations, under our present system by statutory means, must fail until you make philosophers of men so that they will use their powers only for the purpose of reproduction. Illicit intercourse seems a necessary evil. Did you ever know of a case where fear of the consequences would stop a man, or when he would stop to consider the consequences? Just look at the chances they take every day. Will disease and suffering stop it? How often has the doctor been told by a patient suffering with chordee or epididymitis—"Never again, never again!" Yet before he is entirely cured, will ask, "How soon, doctor?" Many will promise to be more careful in the future, but did you ever have one honestly pledge himself not to indulge when he thought himself safe? Will the fear of becoming pregnant, with its



danger and disgrace, or the fear of disease stop the unmarried woman from taking a chance? Neither will the fear of report and registration stop it.

The protection of the innocent by registration alone: How many cases of gonorrhea and syphilis are seen and treated primarily by the physician? I should say about 50%. Who treats the rest? The druggist, the prescription that cured the other fellow, and the proprietary nostrum. Show me the young man who does not know all about "Santal Oil," "Santal Middy," permanganate of potash, sulphate of zinc, or mercury for syphilis, the three S's, Tripp's remedy, and calomel for his sore. If he should not know, he always has a wise friend who does. Of the patients who have been in my office during the past few weeks, I have asked the question, "What would you do should I be required to report and register your case with the health office for record?" The answer has invariably been, "Treat it myself as long as I could."

Syphilis should be skillfully and systematically treated for at least three years. The tendency of gonorrhea is to become chronic, and once so, is one of the most difficult diseases to cure. You will readily see the results of neglect. After you have registered these unfortunates, what will you do with them? Lock them up or place a guard over them so that they do no harm, or compel each one to wear a tag with the inscription, "Gonorrhea within" or "Syphilis within?" Would you suggest a placard on his residence to be a reproach to the innocent members of his family? You are not marking him for a week, or six weeks even. In the case of syphilis the sign must stay until he is well—at least three years, and in gonorrhea, for six weeks to ten years. This would indeed be making the punishment fit the crime, but you must devise some means by which all may know, if you would protect the innocent. I fear even to think of the proportion of our population who would be compelled to wear tags.

Suppose you do not mark the man; how many parents would consult the tabulated lists kept by the health department? How many fathers now inquire into the condition of their prospective sons-in-law? How about the ones who move to other cities? Will they report themselves, and disclose these facts? Or, would you propose to keep complete files of every city, town and village in the United States, with interchange? Would you leave

it to the conscience of the physician to write to the parents, informing them of the condition of their would-be son-in-law? This might be accomplished by changing our code of medical ethics. When would you release these patients from durance vile? Who is to say when they are cured, or at least safe? Some authorities go so far as to say that gonorrhea and syphilis are never cured entirely. While I do not agree, we might say that some are incurable, and many are never cured. What will you gain by reporting the married offender, unless you inform the mate, so that he or she may be protected? In such an event you will make them an object of pity or a laughing stock for a "better than thou" community. You will recall the words of the Great Moralist concerning the woman taken in adultery; but of course, human nature has changed greatly since His time. I fail to see how you have protected the innocent, when you consider a broken home with its attendant disgrace upon the children, even if you have registered the unfortunate.

It has been said that it is easy to criticise, but to do so without suggesting a remedy is of little avail. For the protection of the innocent, I certainly think much may be done. Should you seriously consider an attack upon the black plague, you will find you are confronted with a tremendous problem,—the one that has puzzled the moralists and social scientists for ages. "Thou shalt not commit adultery" was one of the first laws given to man. This fight will take you into every angle and every other problem of our complex civilization—political, economic, ethical, social and moral. Beyond all these artificial conditions lies the original animal instinct,—reproduction. Who will say that the savage, according to his standards, is not as moral as we are? Fournier, the great French authority, says, "Our society is gangrenous." Any serious attack must be persistent and almost revolutionary. It may take several hundreds of years to accomplish anything, and a fresh series of problems may then present themselves,—or rather the old problem under a new guise. You can never hope to do away with the social evil under our present system. All that is possible is to give a palliative treatment to the symptoms or effects, to render these effects as harmless as possible. You cannot cure because you cannot get at the cause,—sexual relations. So long as you have sexual intercourse, you will have illicit intercourse; so long as you have illicit intercourse, you will have disease. There is no question



into which the personal element enters so largely as this, and, if solved, the solution must come from the individual. Because the disease is chronic and malignant, there is no reason why we, as hygienists, should not bring all our scientific knowledge to bear upon it and endeavor to relieve the distress, hoping that future generations, with greater knowledge and greater development, may, under new systems, remove the cause. The situation as it confronts us, seems to be one of prevention and regulation.

Prevention—Education — publicity. Medication — hospitalization.

Regulation—Registration and Examination of prostitutes. Laws regulating marriage. Sterilization of perverts, vicious individuals, etc. Registration of venereal disease.

It would be impossible in the time allowed me for this paper to fully detail how these plans might be carried out.

Education: This is by far the strongest weapon at our command. In the campaign against tuberculosis its value has been demonstrated. In stamping out yellow fever its use was invaluable. You must tell the young about the greatest of all mysteries—themselves. Tell them what it all means. Explain the dangers to themselves and to future generations. Do not keep them in ignorance, or allow them to learn imperfectly from companions. Keyes says, "The most important prophylactic measure is the protection of childhood. Not the futile protection of assumed ignorance, but the protection of intelligent instruction from a respected source (parental if possible), individual at first, perhaps collective later (not by books or tracts), and advancing in accord with the awakening instincts of the individual. This may require changes, even in our school system." Moreover, it is the paramount duty of the physician to instruct every patient treated for venereal disease concerning the grave danger of infection, especially in matrimony.

Medication: The proper treatment of these diseases by the physician will help to control gonorrhea, and may, in time, mitigate greatly syphilis. Certainly syphilis is not now as malignant as when it broke over Europe in the early years of the sixteenth century. I would like here to urge that these diseases be given a more prominent place in the curriculum of our medical schools, as suggested by Fournier.

Hospitalization: Large and proper hospitals for the care and treatment of these cases will aid largely in stamping out the foci of disease. Paris finds three hospitals insufficient. Cleveland has 24 beds. Lock hospitals for the compulsory treatment and detention of the diseased prostitute have been of great value in some countries.

Legal regulation: This includes registration with the police of all prostitutes, either house inmates or known street walkers and solicitors; their frequent, careful examination and periodical reporting; properly enforced laws, demanding a clean bill of health from those about to marry. If the women of America knew and understood and demanded a clean bill of health, they would get it. This would certainly do away with many of the unmerited infections. There should be strict supervision of all wine rooms, dance halls, houses of assignation, factories, department stores, etc., by the "morals police," as outlined by Maxwell. I am satisfied that a very large percentage of infections are acquired while the victim is under the influence of liquor.

Sterilization of perverts: Morally vicious persons, criminally insane, and idiots should be sterilized, as prescribed by the laws of Indiana.

Registration of venereal disease: This I would place last upon the list. It might deter a few, but its chief value would be in drawing public attention to these diseases and to the attitude of the profession concerning them.

There is another phase of this subject which I have intentionally left until the close. It is a somewhat delicate subject, but I fear my paper would not be complete without a reference and a warning. The perversion of our sexual sense by unnatural means of gratification is on the increase. I sincerely hope that you know what this statement means. You will perhaps recall the history of Greece and Rome; the efforts made there to save the chastity of their young men, and the results. I have brought this matter to your notice because, without knowledge, young men may be tempted to forego intercourse, with its possible disgrace should they become diseased, for this other form of vice, in which the risk of detection is less, but from which the results to the individual and to our society are, if possible, worse.



## Submucous Resection for the Correction of Septum Deflections with a Description of the Author's Special Instruments.

By MYRON METZENBAUM, B. S., M. D., Cleveland.

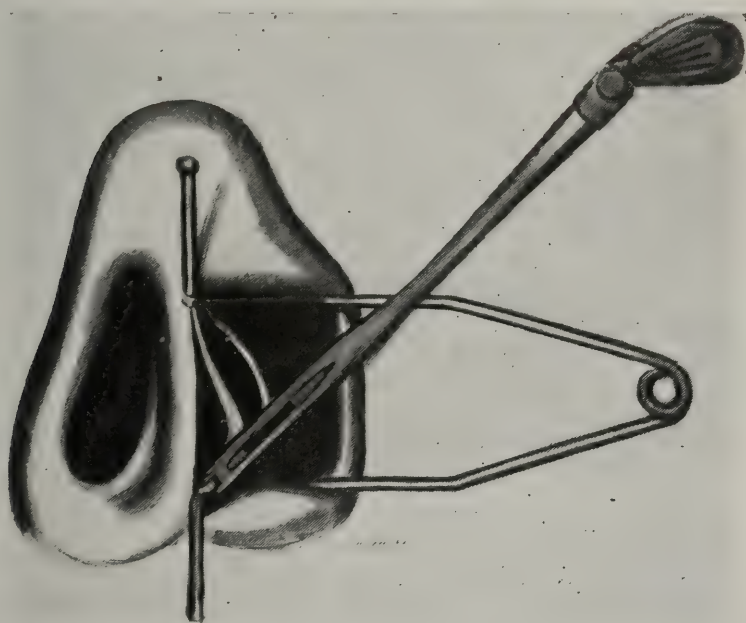
In the formation of the upper jaw the two bony halves unite before the cartilaginous septum is developed. This part of the septum seems to exhibit a certain amount of growth in itself so that when the palatal arch is high or Gothic in form the nasal floor remains high, forcing the flexible septum to bulge or curve into one or both nares in order to obtain its full degree of growth. This may account for a large number of purely cartilaginous deflections. The dislocation of the cartilage at the tip of the nose is always due to injury. Injury, on the other hand, accounts for many of the deflections of the bony portion of the septum, which are either the result of dislocation or callous formation at the seat of fracture of the nasal or septal bones.

Deflections of the septum producing nasal obstruction may be wholly cartilaginous or bony, or a combination of both, and may be located anywhere along the septum, anteriorly, posteriorly, or where it joins the nasal ridge. Many deflections show external deformities, as displacement of the nose from the median line, flattening or widening at the bridge or lateral bulging. Some marked deflections permit of almost perfect breathing; most of them, however, interfere with the free ingress and egress of air through at least one nostril and at times cause intermittent closing of the other nostril. Such a condition naturally forces the person to breathe to a greater or lesser degree through the mouth.

Such an obstruction interferes with the normal ventilation of the nasal chambers, of the middle ear through the Eustachian tube, and of the maxillary, frontal, sphenoidal and ethmoidal cells through their openings into the nose. The obstructions prevent the normal drainage of the nose so that the mucus can be expelled only by force through the narrowed side or may cling to the projecting ridges until drawn through the mouth. Upon lying down the mucus will gravitate into the throat. The irritation of retained mucous secretion may result in a catarrh of the mucous membrane. During a period of an "acute cold in the head" the retained mucus may become purulent and the infec-

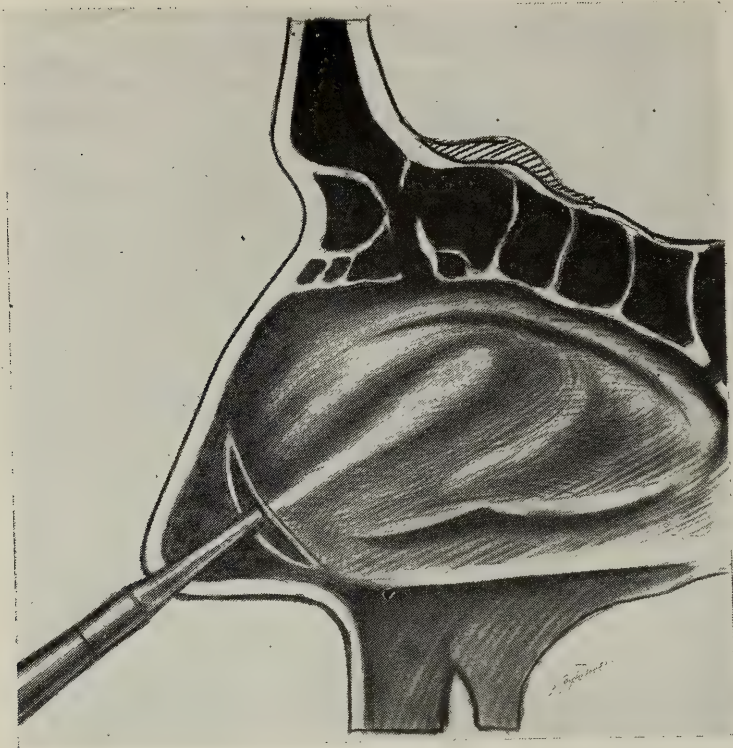


Cross section of nose showing marked deflection of cartilaginous septum

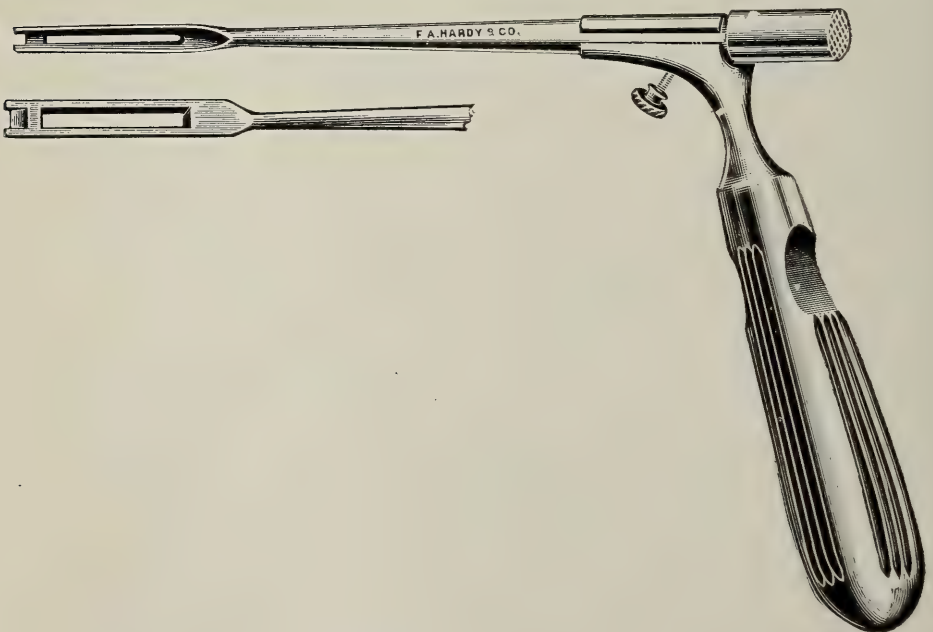


Author's septal chisel engaging bony ridge.





Median section of nose showing elevation of perichondrium. (Freer).



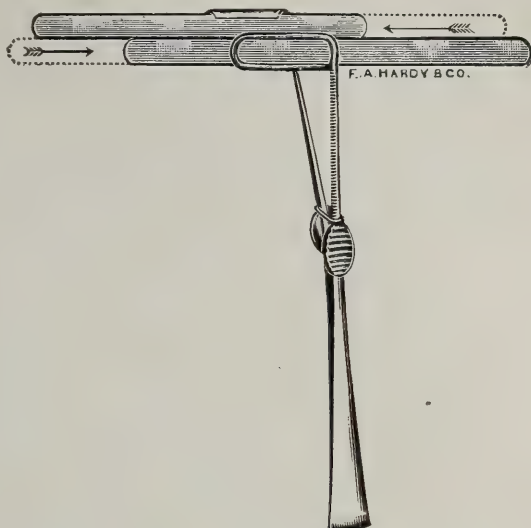
Author's septal chisel.



Author's posterior septal knife.



Author's flexible submucous retractor.



Author's adjustable, flexible, septal speculum.



Author's conforming nasal plug.



Author's flexible septal speculum.



Author's posterior septal pliers.

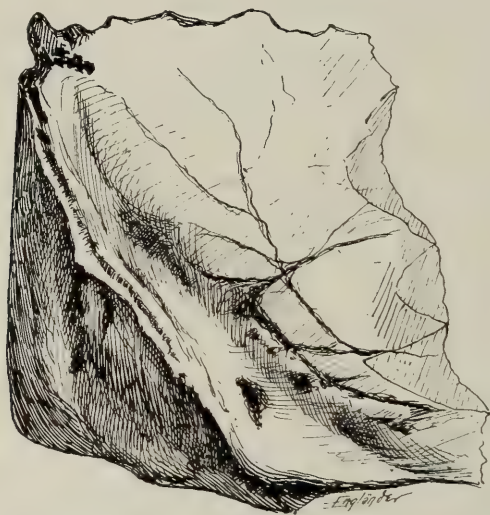


tion extending through the normal openings to the accessory nasal sinuses may be the direct cause of an empyema of the maxillary, frontal, sphenoidal or ethmoidal cells.

When the deflection is in close proximity to the inferior or middle turbinate, during periods of colds or congestion, these erectile bodies will impinge upon the deflection, producing a stuffiness or complete obstruction to nasal breathing on one or both sides, accompanied by a fulness or pain between the eyes. An angular deflection may be of so marked a degree as to be imbedded into the antrum wall or into the inferior or middle turbinate bodies, interfering with or destroying their useful function. Foreign substances clinging to the septal deflection frequently

F.A. HARDY & CO.

Author's flexible submucous elevator.



Large bony deflection of septal cartilage, ridge and posterior bony portion of septum removed entire by author's chisel.

cause an irritation resulting in an ulceration, followed by hemorrhages, or the irritation of the foreign substance may precipitate attacks simulating hay fever. Marked obstructions may result in a reflex asthma.

When a saw is used to remove bony spurs or deflections the mucous membrane is destroyed at the same time, if a cartilaginous deflection be sawed through a permanent perforation of the septum follows. On the contrary if the mucous membrane be first lifted, the deflection removed and the mucosa replaced, no denuded surface or perforation results. By analogy this operative procedure is similar to a laparotomy, in which the

abdomen is opened, the diseased organs removed and the abdominal walls reclosed to protect the operated field without leaving any raw surface or permanent opening.

According to the writer's investigation and clinical experience (as fully noted in the *Ohio State Medical Journal*, Dec., 1910), if 1/100 gr. of hyoscin hydrobromid, or scopolamin, which is the same, be given by mouth one half hour before the operation it will prevent psychical fear, will allay considerable pain, will act as an anodyne for several hours after the operation, and will render it possible to secure complete surgical anesthesia of the mucous membrane of the nares with a 2%, as against a 10 to 50% solution or the use of crystals of cocain. By checking the glandular activity it prevents a too rapid absorption of cocain and by its action on the cardiac ganglia it safeguards the heart against the toxic effects of the latter. Its inhibitory action on the vagus and its branches eliminates the possibility of reflex stimuli coming through this channel and interfering with the heart's action.

The operation is performed better under cocain than under a general anesthetic with the patient in either a sitting or reclining posture. Both sides of the septum are plastered with pledgets of cotton saturated with a 2% cocain in a 1/10,000 adrenalin solution. These pledgets are renewed two or three times in a period of ten minutes, by which time anesthesia and hemostasis are complete. The operation may be performed from either the convex or concave side; many prefer operating from their own right side. However, since the tip of the nose is flexible and the cartilaginous deflection often likewise flexible, the operation can be undertaken from either nostril.

Technic: An incision is made just anterior to the cartilaginous deflection, through the mucous membrane and perichondrium and as high up as necessary, always retaining sufficient cartilage so as not to weaken the nasal bridge. The incision is brought downward to the base of the deflection, which in some cases must be as low as the inferior level of the nasal crest or ridge. Some operators make a right-angled incision along the base of the deflection. A blunt dissector is introduced through this incision at its upper angle between the perichondrium and the cartilage. At this point it can be passed straight backwards, for here the perichondrium separates most readily from the cartilage. The dissector is then pressed firmly downward against the deflection in such a



manner as if trying to straighten it out, freeing the membrane to the very base of the deflection. The separation is continued posteriorly over the cartilaginous or bony septum somewhat beyond the posterior border.

With a guiding finger in the opposite nostril an incision is made through the cartilage  $\frac{1}{4}$  to  $\frac{1}{3}$  inch posterior to the original incision, so as to safeguard against a possible perforation of the mucous membranes in the same line. The blunt dissector is now passed between the cartilage and perichondrium and the mucous membrane is separated in a similar manner as on the first side.

A septum speculum is introduced spreading the mucous membrane on both sides away from the septum. If the deflection be limited to the cartilage a Freer angular knife may be used in its removal, or the Ballenger swivel knife, which engages the cartilage at its upper angle, passes backwards, rotates downwards and is drawn out forwards, removing the cartilage in one piece. If the deflection takes in the posterior bony parts or the bony floor, these are then removed in pieces by the biting forceps of various types.

By aid of the author's septal chisel the cartilage and bony crest or ridge of the floor can always be removed in one piece, and often the cartilage, bony crest and posterior bony deflection can be readily removed in one entire piece without bruising the tissues. By aid of the chisel the operating time is reduced to 12 or 15 minutes as against one and a half to two hours, as reported by many operators. The chisel, one-quarter inch wide, is half curved with a sharp cutting edge set back one-eighth inch and protected on either side by two dull projecting points to prevent the mucous membrane from being caught. It has a long fenestration in which the cartilage may ride.

The chisel engaging the upper angle of the septum is pressed straight back, cutting the cartilage; then, with firmer pressure or by gentle blows from a mallet, it is made to penetrate the upper border of the bony deflection. It is then withdrawn and introduced at the lowermost angle of the nasal crest below the deflection and by slight blows driven back until it has passed the posterior angle.

The portion of the septum to be removed being severed above and below, a slight twist of the chisel usually fractures the posterior border. If this does not occur then either the writer's

posterior cutting forceps or posterior angular knife is introduced and this border is readily cut through.

The two mucous surfaces now come in contact with each other. Then one or two of the writer's nasal conforming drainage plugs, consisting of silk rubber tubing packed with sterile gauze, are inserted into the operated nostril pressing the mucous surfaces in contact with each other. The serum soon swells the plugs, conforming them to the nasal chamber, thereby exerting sufficient pressure to prevent postoperative bleeding.

Effective cauterization or partial resection of the turbinate bodies may be followed by atrophy. *Exenteration, or the complete removal of the inferior turbinate destroys the vital functioning organ of the nose.*

The submucous resection of the deflected septum is a definite surgical procedure, removing the pathological obstruction, permitting the turbinates to perform their function, relieving pressure congestion, restoring a normal patency to the nares, providing free anterior drainage for the mucus and establishing free ventilation to the accessory nasal sinuses.

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### Address on Infantile Paralysis.

By HENRY O. FEISS, M. D., Cleveland, O.

I have been asked to address you this evening on the subject of infantile paralysis, and I wish to state that even if the subject had not been suggested, I probably would have chosen it on account of the fact that this disease has come into the public eye so noticeably of late.

In the first place, I wish to correct the notion of a great many who think that this disease is a new one. Infantile paralysis is not a new disease. It is probably as old as any disease with which we are acquainted, although it has probably been known by other names in early generations. The works of Romberg, Duchenne and Charcot in the middle of this century offer splendid descriptions of the clinical aspects of this affection, but if my memory mistake not, a German, named Heine, first described accurately the nature of this disease (*Spinale Kinderlähmung*—Stuttgart 1860), showing the relation of the clinical manifestations to the cord lesions. Therefore, I repeat that the

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*Presented by invitation before the Academy of Medicine of Toledo and Lucas County, Nov. 4, 1910.*



disease is not a new one but an old one, and one that has been most thoroughly studied in the past.

It is also assumed by a great many at the present time, that it is only in the last few years that its infectious nature is being recognized. This is not entirely true. We have known of so-called infantile paralysis epidemics occurring in various parts, one being mentioned so long ago as 1881 in Sweden, and a number of others being described since. An important epidemic occurred in Rutland, Vt., described in 1885 by Caverly (*New York Medical Record*, Dec. 1, 1885). These epidemics all suggested infection.

It is also said that the disease is getting more prevalent. I hardly think that this is so, or I at least think that the evidence for this statement is lacking, because the dispensary records in New York and other large cities do not seem to show any abnormal increase in the number of cases from one year to another except that occasionally in certain years the number goes up on account of an epidemic in the neighborhood. What has brought the disease more into notice than anything else is, I believe, not the number of cases, but rather the fact that it was last year discovered that the disease, or a disease very similar, could be communicated to the lower animals, at least to one lower animal—namely, the monkey. This fact was first brought to light by the experiments of Landsteiner and Popper (*Ztschr. f. Immunitätsforsch.* Orig. II, p. 377). Soon after this Flexner and Lewis of the Rockefeller Institute repeated the experiment and also succeeded in transmitting it from one monkey to another (*Journal of Experimental Medicine*, Vol. 12, No. 2, 1910). The monkeys in these cases were inoculated with injections of cord extracts prepared from cases which had died of the disease. These experiments seem to indicate the infectious nature of the disease but very little more than that. No bacteria have as yet been discovered. With regard to an antitoxin, nothing important has yet been found, but it is not unlikely that one may be discovered in the near future. Be that as it may, the important aspect of this disease will always be in the chronic stage for several reasons.

In the first place, the disease is often difficult and occasionally impossible to recognize in the acute stage; in the second place, no antitoxin has ever completely cured every case of a given disease. In the case of infantile paralysis, if the anterior

horn cells are once degenerated, no antitoxin will ever bring them back to normal and in a large number of cases, even if the antitoxin aborts the degenerative process, a paralysis will result. It might also be added that these epidemics are not of the nature of diphtheria but rather more like meningitis, a disease attacking cases in the same district but not cases which are very close together. For instance, there may be 20 or 30 cases attacked in one county but these may be several miles apart. In some reports, however, mention is made of closer proximity, suggesting contagiousness. I firmly believe, however, that the largest number of cases are sporadic, arising here and there in any community without any other case being present anywhere about. This at least has been my own experience.

In estimating the question of epidemics, one must not be confused by the fact that a large number of cases occur in large communities. If you study any disease with the help of a map, you will naturally find that it occurs oftenest where the people are congregated most thickly. Therefore in speaking of the epidemic nature of a disease we must take the size of the community into careful consideration and not be misled by the fact that hundreds of cases occur in one district and no cases in another.

#### General Aspect of the Disease

**PATHOLOGY:** In the pathology of this trouble the important changes are probably in the spinal cord. In the early stage there are signs of hemorrhage and extravasation in the meninges and around the blood vessels in the anterior horns (Harbitz and Scheel, *Path. anat. Untersuchen über akute Poliomyelitis und verwandte Krankheiten*, Christiana, 1907). There is a large increase of cells. The neuroglia also shows changes. Most striking are the changes in the anterior horn cells. They become cloudy and swollen and the chromophile granules become larger. Other changes occur in these cells which are characteristic of the early degenerative stage. Later, these cells lose their shape and finally they take the appearance which characterizes them as being incapable of sending impulses. According to some authors, if the process is checked before certain changes occur in these cells, these very cells which have begun to degenerate may still regain their original power. However, I do not believe that this point has been proved. Further changes, pathologically, are a shrinking of the whole anterior horn and later a sclerosed forma-



tion involving the same horn. There are changes also going on in the interstitial tissues and in the white matter. Von Kahlden (*Ziegler's Beiträge*, 1893), as Charcot before him, believes that the lesion is primarily and chiefly limited to cells but most of the pathologists, including Goldscheider (*Zeit. für. klin. Med.*, XXIII, 1893) and Wickman (*Beiträge zur Kenntniss der Heine-Medinschen Krankheit*, Berlin, 1907) describe the lesion as one resembling an acute inflammation involving all the structures of the cord and other parts. In fact it is now pretty well shown, especially by Wickman, that the brain and the medulla are very often affected by the disease, although the clinical manifestations do not seem to bear out these findings very often. I, personally, have often felt, although I have not seen anything with regard to that fact in literature, that gravity has something to do with the original location of the lesion. Assuming that the resistance to the inflammation is equal in every part of the cord, it strikes me as peculiar that it is the lumbar enlargement that is affected in a great number of cases. This is authenticated by the fact that in the vast majority of cases, part of one foot or leg or both are affected; less often the arm is involved with them and seldom the arm alone. The chest, neck and face are only affected clinically in rare cases. Surely it would seem that this distribution has some relation to the force of gravity.

**ETIOLOGY:** With regard to etiology, I have already intimated the more important points—namely, the epidemic nature in some instances, the fact that it is communicable to lower animals and transmissible in them and that no bacteria have as yet been discovered. Further, I wish to add two other interesting points; first, the fact that children are usually attacked but that adults may be attacked and secondly, that the so-called epidemics occur as a rule, in the late summer. I might also add that the great majority of cases occur among the poor, but I do not lay any stress on this point because the great majority of people are poor.

**SYMPTOMS AND SIGNS:** I wish next to say a few words on the clinical manifestations. In the first place, I myself, have seen very few cases in the acute stage. The cases are usually brought to the specialist in the subacute and chronic stages. This is no more than right. In the acute stage the case is distinctly one for the general practitioner and if no deformities are developing, there is no reason for a specialist to be called. The disease often begins like an acute infection, the child has fever and this fever may be accompanied by convulsions or delirium or by rigidity,

thus suggesting meningitis. The child may complain of pain in the back, body and limbs. In other cases there are marked intestinal disturbances with a rise of temperature and vomiting, suggesting gastritis, colitis, appendicitis, etc. Some cases come on like pneumonia. In still other cases the symptoms are light, there being a slight amount of fever, some pain and some tenderness. But in a very large number of cases there are no symptoms at all. The child, apparently perfectly healthy, goes to bed one night and the next morning is unable to rise on account of the paralysis which has developed over night, so we have to do with a disease simulating meningitis, or simulating a gastritis or colitis, or simulating any acute affection whatever, and sometimes coming on with no symptoms at all. It is often only after a paralysis is noted that the diagnosis dawns upon the physician. I might therefore state that the characteristic thing in the early symptoms of infantile paralysis is the very fact that it has no characteristic. But the paralysis once present, there is no excuse for longer doubt. As intimated above, the paralysis may be of almost any distribution, but is very likely to be in the lower limbs. This paralysis has at least two important peculiarities, first, it is a motor paralysis, and secondly, it is a flaccid one. In many cases, but not in all, the knee jerks are lost. The paralyzed muscles having lost their tonicity, those which are unparalyzed, may tend to contract. In this stage the muscles show the so-called reaction of degeneration, which I consider of scientific but not of practical importance. Associated with the paralysis, the extremity of the limb becomes bluish and cold and there is striking atrophy. Going on with the changes due to degeneration, marked regeneration may go on as indicated by the recovery of function of a great many muscles. This is extremely important as bearing upon the prognosis and mention will be made of this point later. In the diagnosis, therefore, the important points that a general practitioner has to bear in mind are first, that any child whatever may become attacked, second, that the attack may come out of a clear sky with a paralysis almost at the very start, and finally, that the attack may come on like any acute infection of childhood, so that a diagnosis in this stage cannot be definitely made.

**PROGNOSIS:** Before speaking of the treatment, I wish to say a word about the prognosis. I have stated that the disease tends to recovery but by that I mean it tends to partial recovery, as a rule, not to complete. It is only occasionally that complete restoration of function occurs. More



often, following a paralysis at the start, there is good recovery going on for several months, then a residual stage is reached when no further improvement takes place. Death occurs but seldom.

**TREATMENT:** In the early stage: After the diagnosis is made, the child is kept in bed and nothing is given in the way of medicine except to quiet the symptoms. If an antitoxin is discovered, it would have to be given in this stage. The child, I say, is kept flat on its back and the bed should be so fixed as not to sag. If the paralysis is of the lower limbs, attention must be paid to their position. If the knees tend to contract, splints must be applied to hold them down, otherwise the contracture is liable to become permanent. Attention must also be paid to the position of the feet. They should be kept at a right angle to the leg unless they tend to stay that way naturally. If the tendo Achillis tends to contract, forcing the foot into toe-drop, some simple contrivance can be devised to prevent this. In the arms and hands, if contractures are developing, simple wooden splints may be used. Of course there are other things to do in this acute stage but the ingenuity of the general practitioner will usually enable him to regulate the treatment according to the requirements of the individual case, and I refer chiefly to these mechanical measures because they are the things which are usually neglected.

*In the stage of recovery:* We have next the so-called stage of recovery, which consists in nothing more from the point of view of treatment than to continue the measures which were instituted in the early stage—namely, the prevention of deformities. It is in this stage that massage and electricity are given. In fact, these measures are started in the very acute stage by some physicians. With regard to these two things, I wish to state that they do no permanent good. It is wise in a number of the cases to use some massage. I believe that it has some good effect on hyperesthesia if it is present, and also perhaps that it hurries the recovery of certain muscles, which in the nature of events would recover anyhow.

With regard to electricity, about the same is true, although it has no good effect on the hyperesthesia. Electricity does perhaps hasten the recovery of certain muscles and more than that, may stimulate some of the good fibers left in the partially paralyzed muscles to carry on the function of the muscle, but it has no specific effect. Neither massage nor electricity can put power

into a muscular fiber which is innervated by a nerve which derives its impulses from a cell of origin which is degenerated. The lesion is one of the central nervous system and changes in the peripheral and muscular nervous system are secondary only to those changes. Therefore, any recovery which takes place during this stage cannot be due to any treatment which we can institute by any methods which are known to us at present. It is a spontaneous recovery pure and simple, and the most we can do is to hurry it a little. Therefore, I would recommend no patient except the wealthy, to use massage and electricity as given by trained help. If the mother desires to rub the legs every day, I approve of it, but if the electric current be used, it must be with care as it can do but little good and may do some harm, because if a child is hyperesthetic and its legs tend to contract, excitations conveyed by this current into the good muscles may hasten a contracture or make one permanent. The fallacious treatment in the past was therefore in the expenditure of time, money and energy on things which were practically hopeless from the start, where if the same amount of time and energy had been devoted to the mechanical end of treatment in order to prevent deformities, far more could have been accomplished.

*In the stage of residual paralysis:* We now come to the third or chronic stage, where after an original attack of paralysis, recovery has taken place, leaving a residual paralysis in a part of, or a whole group of muscles. The treatment here consists of two steps, or at least the consideration of two steps. First, the correction of deformity and second, in attempting to increase the functional control of a given joint.

*Correction of the deformity:* If caution has been taken in the acute stage, or at least in the stage of recovery, there may be no correction of deformity to carry out. If, however, these precautions have not been taken, or if they have not succeeded, this correction must be the first step. Flexion of the wrist with a claw-hand may be treated by a splint which holds the wrist and hand in a hyperextended position. Contractions at the elbow and shoulder occur seldom and require no words. Contractions of the hip are usually due to flexion of the knees. Allow the knees to remain flexed for a long period and one will often find that the tensor vaginae femoris has contracted and that it will have to be stretched or divided. The obliteration of deformities of the knee is usually accompanied by a certain



amount of danger because if the deformity is marked and has persisted for a long period, the vessels and nerves which cross the popliteal space accommodate themselves to their new position and become shortened. Hence, if such deformity is straightened out suddenly, there is extreme danger of tearing the vessels and nerves, causing gangrene. Therefore, under such circumstances, I usually recommend a slow correction of this deformity, doing it preferably gradually by braces and splints, or if necessary, manipulations under ether with open division of the contracted tendons, but often carrying out the actual correction in more than one sitting. The same principles apply at the ankle joint, although the dangers are less marked here. If the foot is in toe-drop, lengthening of the tendo Achillis may be done by tenotomies or by the open method. If the foot is turned in or out, division of tendons may be necessary but one should try not to injure the tendons which may be useful later for tendon transplantation. The principle in the correction of deformity is to do everything by conservative measures if possible, using manipulations under ether in severe cases and dividing tendons only when necessary. After the deformity is corrected, the limb must be held in the position of greatest function unless it takes that position of its own accord. A brace, however, is usually necessary.

*Increase of active function:* After correcting the deformity and a period has elapsed so that it is absolutely certain that no further recovery is taking place spontaneously, we have now the opportunity in some cases of further adding to the function of the limb. There are three methods of effecting this; first, by braces; second, by operations on muscles, tendons and joints; and third, by nerve operations. This last method is still in its experimental stage.

*Braces:* With regard to braces, I have little to say this evening as the subject is too large to discuss intelligibly in the scope of my present remarks. I might simply say that a brace may be made an instrument of torture or an instrument of relief. If it is an instrument of torture, it does more harm than good; if it helps, it should be used, and an accurately made brace may be of the greatest service to some patients. Two important principles in brace construction are efficiency and simplicity. A brace must carry out its object and not be any heavier than necessary for that purpose. Simplicity is required so that the

strains may be carried in the direction indicated by the paralysis in each individual case. Many braces that are used today are too complicated and try to do too many things. It is better for a brace to do one thing only, but to do that one thing well. Further, it is to be mentioned that a brace will seldom correct and hold a deformity at the same time; the deformity must be corrected first, the brace will then maintain the correction.

*Operations on muscles, tendons, and joints:* Following the example of Strohmeyer many years ago we first began to do subcutaneous tenotomies. As said above, these are often very useful. Following Strohmeyer, came the work of Nicoladoni, 20 or 30 years ago, who did the first tendon transplantation. The object of a tendon transplantation is to distribute the tendinous pulls about a joint so that their total power may be used to greater advantage than before the operation. It is erroneously supposed by a number of doctors, including specialists, that a tendon transplantation will add to the total power about the joint. It will, if successful, simply use that total power to better advantage. For example, the peroneal tendons bring about eversion of the foot and are normally of comparatively little use, hence in a case of paralysis, say of the tibialis anticus, the peroneus longus may be spared from its usual attachment and improve the functional condition of the foot if sewed into or near the insertion point of the paralyzed tibialis anticus tendon. This example illustrates the important principle of almost all tendon transplantations. One point about a tendon transplantation is to bring the attachment of the transplanted tendon to a place where its pull is as direct as possible. To be more explicit, one should aim to attach it directly to the bone if it is long enough to reach. For this reason the use of silk lengthenings has been devised to be used when a tendon is too short. But silk has its drawbacks. In the first place, it sloughs out easily and in the second place, it does not grow in length to accommodate itself to the growing condition of the limb. In the operation great care must be used to free the muscle well and the knots ought to be buried so that they do not protrude under the skin or scar. In some clinics the silk is boiled in paraffin before being used, so as to prevent its adhering to the soft parts. I do not believe that the use of silk for the purpose of lengthening tendons is nearly as successful as most of us are led to believe.

The chief limitation of tendon transplantation is the lack of



a sufficient number of tendons that have remained good. In an ankle in which only one or two muscles retain their function, it is ridiculous to try to do a tendon transplantation, but in a case in which the residual number of good muscles is large, but their power poorly applied, it may be wise to resort to this operation.

In cases in which a tendon transplantation is not feasible and yet in which the patient is desirous of getting improvement by surgical intervention, there are at the ankle joint at least two operations which may be done, these are arthrodeses and astragalectomies. The arthrodesis is nothing more nor less than the removal of the cartilage from the joint in the hope that ankylosis will set in so as to make the joint rigid, and hence useful for weight bearing and treading. Royal Whitman suggests that the astragalectomy is better. Astragalectomy consists in the removal of the astragalus and mortising the tibiofibular joint well forward on the foot. Sometimes these operations are successful, sometimes not. In considering operations of this sort, one must always bear in mind the condition of the other joints of the limb. If the knee and hip are paralyzed so that they are useless, it will usually be foolish to try a tendon transplantation on the foot even if the conditions there are inviting. Common sense, experience and good judgment must be used in every case, for no two cases are ever alike.

*Nerve operations:* Finally, we must consider the question of operation on the nerves. The subject of nerve transplantation has been before the eyes of the neurologist and the orthopedist for a number of years, the idea being to attach part of the good nerve into a paralyzed nerve, or to attach a paralyzed nerve into a good nerve trunk. The limitations of nerve transplantation have, strange to say, hardly ever been considered at their proper worth. If one examines a nerve trunk in a case of infantile paralysis, he will note how difficult it is to select in that nerve trunk or its branches, the parts which are good from the parts which are bad. The good and the bad are usually intermingled and in many cases, one will probably find that even in the individual nerve fascicle, good fibers are mixed with bad. It may therefore be appropriate this evening to mention the fact that I am now conducting experiments in the hope of finding a method for obtaining a better distribution of good nerves by some other means than by nerve transplantation in the sense that the word is usually used. The basis of these experiments is the fact that if

a normal nerve is divided or crushed, degeneration will develop in the peripheral stump but that in the central stump the old axis cylinders will tend to branch, forming little fibrillations or brush-like ends. Hence, the hope ought not to be unfounded that if empty tracts are offered to these nerve ends some of the branches will regenerate along new paths. The experiments consist in what I speak of as "nerve fusions," By this I mean a crushing of nerves for a little distance causing degeneration of all the fibers in the peripheral stump and allowing a neuroma to form at the region of crushing. Gradually the newly forming nerves will force their way into the neuroma and as the tendency to growth ought to be equal all through the cross section of that neuroma, some of the regenerating nerve fibers or their branches ought to find their way into new paths eventually, thus bringing about perhaps a more advantageous distribution of power in a given muscle or group of muscles. Some of these experiments, which have been done on dogs, have been suggestive of return of function in parts which were previously paralyzed. Others are complete failures. On a basis of the more successful ones, I did a nerve fusion on a little girl seven weeks ago, the case being one in which the operation could not render the patient worse. It will take several months, perhaps a year, to be able to say whether any gain of power is obtained. The case will later be reported in full.

In closing, I wish to state that the subject of infantile paralysis, as I prefer calling this disease, is one of the greatest interest, not only for practical reasons but because it offers one of the deepest problems that the medical man is called upon to study. To understand the disease in all its intricacies, requires an insight into many branches of medicine, including especially orthopedics, neurology, surgery and physiology. No two cases are ever alike, yet the very difficulties of the individual case often go to make up its most attractive feature.

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### The Support of the Pelvic Viscera.

By E. O. HOUCK, M. D., Cleveland.

I desire to preface this paper by stating that it is not the result of any anatomical work of my own but it is merely a brief

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*Read before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, Oct. 6, 1910.*



compilation of the work of well known anatomists and clinicians. I regret that I am unable to supplement the paper with stereopticon slides of actual dissections or diagrammatic drawings by Waldeyer, Merkel, Holl and others.

Before taking up the description of the supports of the various pelvic organs in detail it will not be amiss to say a few words regarding the muscles and fasciae which make up the pelvic diaphragm and the accessory or urogenital diaphragm.

The pelvic diaphragm, or pelvic floor as it is usually called, consists of a group of muscles with their fascial coverings which, when considered in toto, are referred to as the levator ani muscle—the fascial coverings as a superior layer or vesicorectal fascia and an inferior layer or ischiorectal fascia. Anatomists are not altogether in accord as to how many distinct muscles form the levator ani muscle, nor are they of one opinion regarding the relation of the fascia to these muscles, or the origin of the fascia and its relation to the fascia of the abdomen.

The muscles making up the pelvic or rectal diaphragm are, from the middle line, the puborectalis, pubococcygeus, iliococcygeus and ischiococcygeus, to which may be added the pyriformis muscle. Holl considers the pyriformi as belonging to the muscles of the hip joint.

It will be noted that these muscles have derived their names from their point of origin and insertion (not strictly), and that but one group of fibers, the puborectalis, is inserted into the wall of the rectum or anus. Homologically these belong to a group of muscles found in lower animals and are concerned in the movements of the vertebral column.

As to the pelvic fascia, Waldeyer and Merkel consider it merely a continuation into the pelvis of the endo-abdominal or transversalis fascia which is densely adherent at the symphysis pubis, at the linea terminata and at the sacrum. Adopting Waldeyer's view, the subperitoneal connective tissue (fascia fibreux of the French) is also continued into the pelvis as the subfascial connective tissue.

Holl, who has made a minute study of the pelvic muscles and fascia, does not consider the pelvic fascia as a structure peculiar to the pelvis, but that it is only the fascial covering of the underlying muscle, having the same relation to these muscles as have the muscular fasciae in any other part of the body. That portion of the pelvic fascia covering the levator ani muscle is

spoken of as the parietal fascia and that enclosing, or partially enclosing, the viscera as the visceral layer of the pelvic fascia. I mention these well known divisions of the fascia because of the different views held as to their relation to one another. Waldeyer views the visceral fascia as an upward prolongation of the superior layer of the pelvic fascia whereas Holl believes it to be a special fascial covering of the viscera and only attached to the superior layer of the parietal fascia along the "white line" of the pelvis. Holl, because of its attachments, has designated the visceral fascia the pubosacral fascia and divides it into an ascending and descending leaflet. It seems to me, at least for the purpose of understanding the relation of the pelvic fascia, that Holl's description is the simplest.

Anteriorly between the pubic bones and the ascending portions of the ischia is a defect in the pelvic floor caused by the passage out of the pelvis of the urogenital apparatus.

This defect is remedied by the accessory or urogenital trigone (triangular ligament) which also consists of a superior and inferior layer enclosed between which are glandular structures and a group of muscles known collectively as the compressor urethrae or constrictor cunni muscles (ischiopubicus, transversus profundus perinei, compressor urethrae and their aponeuroses the ligamentum arcuatum and transverse ligament of the pelvis).

Bridging over the floor of the pelvis between the important structures are also leaflets of the visceral fascia which from their relations have special names, for example, the floor of Douglas's pouch, the vesicorectal fascia. Where the fibers of the visceral fascia are more dense and serve in a special way to support the viscera, they have been dignified by the name of ligaments—we have the pubovesical, puboprostatic, the vesicorectal, or better the vesicosacral, and the uterosacral. These ligaments contain further smooth muscle fibers and yellow elastic tissue. Fibers of the visceral fascia are also attached directly to the pelvic veins and serve thereby to regulate the flow of venous blood.

With these general remarks in mind I shall take up briefly the description of the supports of special viscera and their relation to the pelvic fasciae and pelvic floor muscles.

The rectum, like other pelvic organs, is subject to such great variations in its volume and somewhat in its location, that it cannot be said to have any fixed position and hence its supports must afford considerable range of mobility. The pelvic portion



of the rectum is quite movable and is supported by means of fibrous tissue attachments to the hollow of the sacrum or more particularly by loose fibrous tissue attachment existing between its visceral layer of fascia and the parietal fascia. The visceral layer of fascia, or fascia recti, is a tubular prolongation upward of the visceral fascia and encloses the rectum except where it (the rectum) is covered by peritoneum.

Between the fascia recti and the parietal fascia are to be found the pararectal spaces which are filled with fat. Sometimes

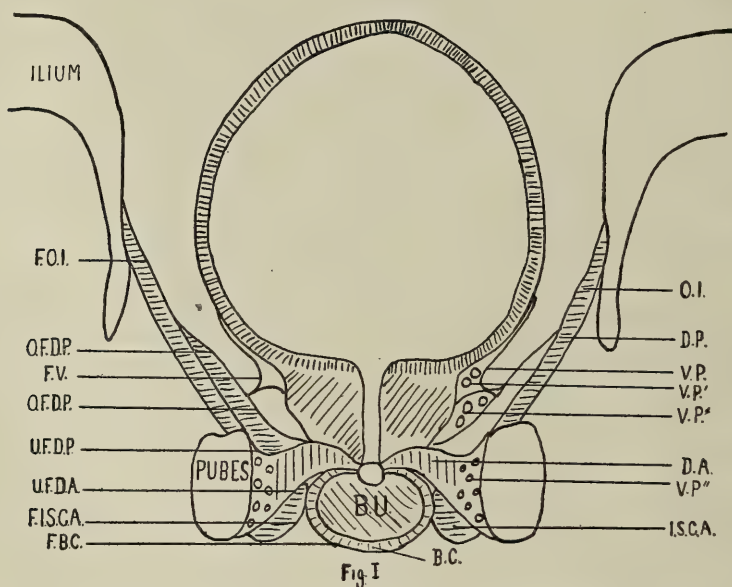


Fig. 1. Schematic presentation of the pelvic fascia drawn in a vertical line through the urogenital region. (Holl: Bardeleben's Anatomy). FOI, fascia of the obturator internus. OFDP, superior layer of the pelvic fascia. FV, visceral layer of the pelvic fascia. UFDP, inferior layer of the pelvic fascia (ischioanal fascia). UFDA, inferior layer of the fascia of the accessory pelvic diaphragm (anterior layer of the triangular ligament). FISCA, fascia of the ischiocavernosus (erector penis) muscle. FDC, fascia of the bulbocavernosus muscle. OI, obturator internus. DP, pelvic diaphragm (levator ani). VP, VPI, VPII, venous plexus. ISCA, ischiocavernosus. BU, bulb of the urethra.

there is also a thin layer of fat between the fascia recti and the rectal wall proper. The lower portion of the rectal fascia where it bridges over to join the parietal fascia is known as the ligamentum anococcygeum. The pars analis recti is firmly fixed by the fascia and musculature of the pelvic floor, and if a descending leaflet of the visceral fascia exists around the anus at all it is so closely adherent to the parietal fascia as to be inseparable.

At this point it may be well to give briefly the relation of the levator ani to the rectum and anus. Only a small portion

of the levator ani, the puborectalis, is in direct relation to the rectum and can be considered a "levator" ani. The pubococcygeus is not directly attached to the rectum but runs along the sides of the walls of the rectum and is more of a constrictor recti muscle. Its insertion is on the anterior surface of the sacrum and coccyx forming the anterior sacrococcygeal ligament.

Portions of the puborectalis cross to the opposite side in front of the rectum and form the superficial transverse perineal muscle. Indeed Lartschneider considers the puborectalis and pubococcygeus as belonging to the superficial muscles of the perineum. Other fibers of the puborectalis run along the front

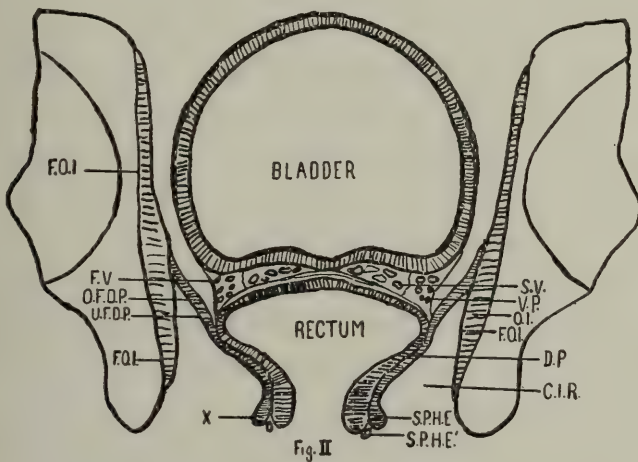


Fig. II. Schematic picture of the pelvic fasciae in a vertical line through the lower portion of the rectum (Holl: Bardeleben's Anatomy). FOI, fascia of the obturator internus. FV, visceral layer of the pelvic fascia. OFDP, superior layer of the pelvic fascia (vesicorectal fascia) UFDP, inferior layer of the pelvic fascia (ischioanal fascia). X, fibro-elastic connective tissue which represents the downward continuation of the pelvic fasciae. SV, seminal vesicles. VP, pelvic venous plexus. DP, pelvic diaphragm (levator ani). CIR, ischioanal fossa. SPHE, sphincter externus. SPHEI, superficial external sphincter.

and sides of the rectal walls and between the sphincter internus and externus to be inserted by means of elastic tissue in the skin around the anus. The iliococcygeus muscle is in relation to the rectum through the anococcygeal ligament.

In addition to the muscular attachment of the pars analis recti it is further supported by its close relation to the central tendon of the perineum, this central tendon being the point of union of the superficial and deep perineal muscles with their fascial prolongation, receiving in addition unstriped muscle fibers from the viscera and yellow elastic tissue.



Bladder and prostate: In view of the close anatomic relation existing between the bladder and prostate a description of the fixation apparatus of both will be taken up together. The support of the bladder in the male is brought about principally through its relation to the prostate. Since the prostate rests upon, and in places is adherent to, the superior layer of the urogenital trigone this structure serves to support both organs. Laterally, and in the median line, the prostate is attached to the pubic bones by the puboprostatic ligaments which are thickenings of the visceral fascia (pubosacral fascia). These ligaments contain unstriped muscle the muscoli puboprostaticae which are continuations of the longitudinal fibers of the bladder. The prostate is further fixed by means of its capsule which is a leaflet of the visceral fascia extending on either side and on its posterior surface. Underneath the capsule is the prostatic plexus. The median edge of the levator ani muscle overlaps the posterior surface of the prostate thereby, through its superior fascia, affording support to the prostate and hence to the bladder.

Posteriorly the puboprostatic ligaments are continuous with the vesicosacral ligaments by means of the vesicorectal fascia. It will be seen thereby that the rectum, prostate and bladder are "hung up" by means of a fibrous sling extending from the fourth sacral vertebra to the middle of the posterior surface of the pubic bones at the symphysis, the pubosacral ligament of Holl.

In the female, although the relations of the bladder are essentially different, the supports are analogous. We have instead of the puboprostatic, the pubovesical ligaments and instead of the support of the prostate we have the support of the uterus and vagina.

Because of the shape of the vertex of the bladder and its ever changing volume, we have little or no support to the upper part of this viscus. For this reason it follows the line of least resistance and is found up in the abdomen or even in the sac of a ventral or femoral hernia. The median ligament (urachus) or the lateral ligaments (obliterated hypogastric arteries) of the bladder can scarcely be said to be suspensory ligaments, for in the adult they represent merely folds of the peritoneum.

Of all the supports of the pelvic viscera those which serve to hold the uterus in place have received the most attention. The difficulty in the proper appreciation of the supports of the uterus has arisen because clinicians have sought to estimate the relative

values of the supports, placing greater importance on one or the other structure.

Thus Goffe (New York) maintains that the uterus is suspended from the sides of the pelvis and that a rupture of the pelvic floor is harmful, not because of its failure to support the uterus but because of the dragging upon the uterus of the prolapsed posterior vaginal wall. Clinical experience seems to sustain this view for it is not uncommon to have a complete rupture of the perineum without much descent of the uterus, a condition which has not been satisfactorily explained.

Anatomists lay great stress upon the integrity of the perineum and the fixation of the vagina to the pelvic diaphragm and triangular ligament for the support of the uterus. While the levator ani muscle (pubococcygeus) is only indirectly connected with the vagina it serves to counteract the intra-abdominal pressure and thereby prevent descent of the uterus. One can have, however, even a complete prolapse of the uterus in a nullipara but when this occurs there is either an infantile uterus or there is a remaining fetal condition in which there is an abnormal prolongation of the peritoneum downwards between the bladder and uterus or even between the bladder and anterior wall of the vagina. The same condition may exist in an abnormal depth of the pouch of Douglas.

The uterosacral ligaments containing the uterorectal muscles (unstriated) are principally concerned in holding the uterus in an anteverted position. While the pelvic floor is the principal support of the uterus from below, the broad ligaments serve to support it from the sides of the pelvis. This support is accomplished not by means of the folds of peritoneum but by the bands of fibro-elastic tissue contained within the folds, more particularly at the bases of the broad ligaments. They serve to support the uterus in a transverse axis and have been designated as the transverse ligaments of the uterus (Mackenrodt) or the ligamenta cardinalia (Kochs). These bands follow closely the uterine artery.

While the uterus assists in the support of the bladder by means of the fibrous tissue between the posterior wall of the bladder and the supravaginal portion of the cervix, this relation is reciprocal in that the ligaments of the bladder assist in holding up the uterus, so that if there is a dislocation of the one organ downward the same occurs in the other, though perhaps not in



the same degree (Dickinson's planes). Waldeyer thinks that when the bladder is empty it affords support to the superimposed fundus of the uterus.

The vagina is held in place below by its firm union with the urogenital trigone, above anteriorly by its adherence to the urethra and bladder, and still higher by its union with the uterus. Posteriorly it is connected by fibrous and muscular tissue with the rectum by means of the central tendon of the perineum.

It is evident then from the foregoing that there is not only a close anatomic relation between the pelvic viscera but there is a still closer and more intimate relation in their supporting structures, and that if from any reason the supports have lost their function or been destroyed, all the pelvic viscera will be displaced from their usual typical positions, but not necessarily, however, to the same degree. To illustrate this point Dickinson of New York (*Am. Jour. of Obst.*, July 1910) has recently published plates showing what he calls various sliding or prolapse planes of the pelvic viscera. He has differentiated four usual types of prolapse segments: 1. Urethral segment. 2. Vaginal segment (including trigone and cervix). 3. Perineal segment. 4. Retro-anal segment.

The round ligaments, though often made use of by operators to bring and to hold the uterus forward, are not generally considered as having much to do in supporting the uterus in an anteverted position. Their function is perhaps more a preventative one—in that by means of contraction they serve to prevent the uterus from being dislocated backwards.

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### The Management of Prostatic Hypertrophy.

By D. S. GARDNER, M. D., Massillon, Ohio.

No other malady, perhaps, contributes so much to the sum of human suffering as does prostatic hypertrophy. It exists in 65% of all men past 50. Its etiology is not clearly understood, hence we make no progress towards its prevention. It doubtless is most frequently the outgrowth of chronic prostatitis, but it must be admitted that it is occasionally the normal accompaniment of old age. The early symptoms of frequent urination which is always first noticeable at night, a possible delay in

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*Read before the Stark County Medical Society, November 15, 1910.*

starting the stream, particularly if the bladder be distended, and the loss of the "piston stroke" in closing the act, resulting in dribbling, are present for months and even years before one is consulted; hence, the hypertrophy is positive and one is called upon to determine only whether or not the treatment shall be palliative or operative.

I will only briefly recall your attention to the fact that prostatic hypertrophy is most often seen when the individual is no longer able to cope with the consequences of one of the most formidable operations of surgery. The retention, for the relief of which one is most often consulted, is not apparent until the sixth or seventh decade of the individual's life. Accompanying the condition usually are found extensive vascular alterations which have resulted in degenerative changes in the heart and kidneys. If the patient survive the shock of the operation, or possibly a secondary hemorrhage, or traumatic or hypostatic pneumonia, it is frequently found that an impaired kidney function, previously believed to be good, terminates his life by anuria. Should he survive, urinary fistulae and incontinence are not infrequent end results. As a whole, operations upon the prostate do not reflect credit upon our art. In speaking of the history of prostatectomy Hugh Young aptly says there was "first the demonstration of valuable new procedures, then a discovery of miserable results and a startling mortality, then a reaction against the procedure, and finally, but after the loss of many valuable years, a return to the truth."

The mortality attending the operation remains from six to ten percent. I would not be understood as arguing against operative procedure in every case of prostatic hypertrophy, but I contend that the indications for it should be based upon the following conditions:

First. When palliative measures have been proved useless or, owing to the environment of the patient, found to be impracticable. As frequently happens, these cases are mentally below par and have neither the intelligence nor cleanliness necessary to use the catheter. I recently saw a penurious gentleman, aged 80, living practically alone, attended only by a grandson of 15, whose duty it was to catheterize the aged relative several times a day. The patient was suffering from urinary infection as well as urinary intoxication. A prostatectomy was done. He died in two days from shock and anuria.



Second. When malignant disease is diagnosed or strongly suspected we must still rely upon surgery to prevent or retard in some way the usual fatal course of this disease. Albarran states that 14% of supposed cases of benign prostatic hypertrophy are malignant. Young gives his experience as 20%, while others have estimated that one in every two persons having prostatic enlargement is suffering from a malignant disease of this organ. This percentage is far too high.

Third. In the presence of stone as a complication, or of an unconquerable irritability of the bladder, or where catheterism is followed by hemorrhage, or when a progressive urinary toxemia exists, surgical measures are a necessity and are often the only means of averting a fatal disaster.

Within the past year I saw a gentleman, aged 75, who presented many of the elements of this chapter. His early life was not good. He had had a number of Neisser infections, which were then very little understood, and he received but indifferent treatment. The prostate was diseased. At the time he consulted me sleep was almost impossible, due to the frequency of urination. There was constant pain and tenesmus with frequent overflow. The urine was ammoniacal. The bladder was infected. He had lost much weight, and offered a picture of general wretchedness and distress. He was unacquainted with catheter life. Rectal examination revealed a not excessively large prostate. Efforts to pass either a soft rubber catheter or a rat-tailed woven elastic one failed, but a flattened, double-elbowed, elastic, Mercier instrument passed after considerable manipulation. Six ounces of fetid residual urine was secured. In this case an effort was made to daily pass a catheter and to irrigate. We failed in the attempt to keep him in bed with a retention catheter. Each effort, no matter how gently conducted, was attended with uncontrollable pain, stranguary and tenesmus, requiring morphin for its relief. This condition was doubtless due to an inflamed verumontanum and trigone. In consultation with T. Clarke Miller an operation was advised and accepted. The operation was done by G. W. Crile and W. E. Lower. Through a perineal incision a moderate sized prostate was removed. It had a very short isthmus, which accounted for the lateral compression upon the urethra. His recovery was complete and uneventful. The drainage and rest which his bladder received resulted in a complete cure of his cystitis. He gained

20 or more pounds in weight and now enjoys good health. On the other hand, the old man with a bladder that is not oversensitive, who endures his catheter well, who has established his tolerance and acquired an immunity, should not, except in the presence of these complications, be considered a candidate for operative interference.

Having determined to advise a patient to make use of the catheter it is always advisable to urge that he send for you when threatened with retention. You will be agreeably surprised at the number of years you will be able to manage him without complete retention occurring, especially if he will supplement these special visits with occasional others, during which you will relieve him of his residual urine, pass a large flexible bougie, irrigate his bladder with a boric acid solution at a temperature of 105°, and complete the sitting with an instillation of 10% silver vitelline solution. If from any cause you find it necessary to advise him to use the catheter himself, I would urge you to keep in mind three important principles: First. The selection of proper instruments. Second. The principles of asepsis and antisepsis. Third. The utmost gentleness in all manipulations of the urethra.

Posner settled the question that in normal conditions the contents of the kidneys, the bladder, and even the posterior urethra are germ free, while the urethra, anterior to the compressor urethrae, harbors microorganisms of various kinds. Gurzow first demonstrated by experiment that if a collection of pathogenic organisms is introduced into the bladder of a healthy animal no ill effects whatever will occur. At the next urination they are all evacuated. If, however, the bladder has undergone changes, say by disease or from previous irritation or injury to the mucous membrane, the pathogenic effect of the bacteria will soon make itself felt. There will be cystitis and possibly a general infection. If, therefore, a slight injury to the urethra may be sufficient to produce infection, how important it is to prescribe none but soft and flexible instruments. For years I have personally avoided the use of metallic catheters, no matter how alluring they may seem, and never do I direct for a patient's use other than the "gig," or at most a woven elastic catheter.

It is well nigh impossible to educate these patients, and also those who have them in charge, to the importance of routine and systematic care of the catheter. I endeavor to have it thor-



oroughly cleansed, dried, and subjected to the vapor of formalin after each application, but it is usually impossible to secure this cleanliness. The instrument is generally kept under the bed of the patient, under his chair, or in his vest pocket, and you will be charged with unreasonable extravagance if you suggest the necessity of his keeping at least six catheters in use. You should endeavor to have used no lubricant containing fatty substances, and only such as are contained in sterile collapsible tubes, though you will find many patients using anything from saliva to lard. The deteriorating effects of fatty substances upon soft rubber is very well known. A few years ago I prescribed catheter life for a patient who was beginning to show mental enfeeblement. I would frequently find his catheter—and he never possessed but one at a time—in various places, on the floor or beneath the cushion of his chair. Hog's lard, kept in a small saucer, was used as a lubricant. I was never asked to replace his catheter until it had undergone complete degeneration from the effect of the lard and long usage, yet through some strange law of tolerance his urethra acquired an immunity. His catheter life extended over a period of ten years and he ultimately died of general exhaustion.

These instances should not excuse us from a rigid adherence to the laws governing surgical procedures. It is a lack of aseptic measures that leads ultimately to infection and sooner or later terminates the life of the patient.

Finally, I desire to emphasize the importance of the utmost gentleness in all manipulations of the urethra. Especially should this be observed in prostatic hypertrophy. Normal anatomical relations are disturbed. The length of the urethra is increased from 8 to 10 or even as much as 11 inches. The curve of the posterior urethra is increased from 90 to as much as 120°, and the entrance into the bladder is frequently perpendicular to a horizontal line. By keeping this picture before us we see how suitable a soft rubber catheter is in finding its way through this tortuous canal. However, its flexibility frequently does not admit of sufficient force to pass the instrument into the bladder, especially if the hypertrophy has produced much lateral pressure, thereby narrowing the canal in that diameter. It then becomes necessary to use one of the many forms of woven elastic catheters, but at no time must anything bordering upon force be attempted in their use. In no other condition is it as easy to

produce a false passage. This catastrophe, unless speedily remedied through some surgical procedure, is the beginning of sepsis, urinary extravasation and death.

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### Review of the Progress in Pediatrics.

Conducted by HELEN HEMPSTEAD, M. D., Cleveland.

1. Contributions to the Study of Tetany in Childhood—Pexa.
  2. Phosphorated Cod Liver Oil with a Calcium Salt in Rickets—Schabad.
  3. Chronic Appendicitis in Children—Comby.
  4. The Thyroid and the Hair—Leopold, Levi and Rothschild.
  5. Suppuration in the Urinary Tract in Children—Thiemich.
  6. Inherited Diatheses in Children—Heim.
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#### CONTRIBUTIONS TO THE STUDY OF TETANY IN CHILDHOOD.

By V. Pexa: *Archiv. für Kinderheilkunde*, 1910, Vol. LIV, No. 1-3.

From his experimental work with patients suffering from tetany in childhood, the author's conclusions are as follows:

1. In a young dog fed with a calcium-free diet the following symptoms were found: (a) indifference of the animal to outside impressions; (b) absolute lack of increase of electrical excitability in the peripheral nervous system; (c) a definite decrease in the calcium content of the central nervous system; (d) richer glycogen content in the otherwise unchanged parathyroid.
  2. The cause of tetany and of spasmophilia cannot come alone from an insufficient calcium content of organs, because an experimental dog shows no increase of electrical excitability in the peripheral nervous system although the calcium content of the brain be much decreased following a calcium free diet.
  3. If in tetany the lack of calcium plays a role, then the development of tetany could be prevented by the activity of the parathyroid cells in overcoming the poison.
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#### THE GIVING OF PHOSPHORATED COD LIVER OIL WITH A CALCIUM SALT IN RICKETS.

By J. A. Schabad: *Jahrbuch für Kinderheilkunde*, July, 1910, Vol. LXXII, No. 1.

The author finds that if a calcium salt is given at the same time as a phosphorated cod liver oil, the choice of the preparation plays an exceedingly important part. While calcium acetate is retained by the organism in noticeable quantity (20 to 60%), calcium phosphate and calcium citrate are not retained. In



complete accord with the calcium retention is the phosphorus retention. The calcium acetate betters the retention of the phosphorus of the nourishment, while the calcium salts which are not capable of retention—phosphoric acid and citric acid salts—make the retention of phosphorus worse. The giving of calcium salt increases the nitrogen content of the feces, and decreases the nitrogen resorption, but the nitrogen retention is increased, thanks to the strong decrease in the nitrogen of the urine. By giving calcium salts the fat absorption is much impaired: this impaired fat absorption cannot be explained by increased soap formation. In accordance with an impaired fat absorption, a decreased splitting of fat is observed in the feces. The decreased absorption of fat cannot, however, be completely explained by the giving of calcium salts, for the superabundance of the unsplit fat in these experiments does not cover at all the superabundance of the whole fat in the feces.

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#### CHRONIC APPENDICITIS IN CHILDREN.

By J. Comby: *Archives de Medicine des Enfants*, June, 1910. Vol. XIII, No. 6.

Acute appendicitis is nearly always preceded by a chronic appendicitis. Chronic appendicitis is particularly frequent in children. The causes are numerous and varied. At times found in very strong children, it is due to an hereditary predisposition or to a family predisposition. Among the antecedents of chronic appendicitis are often found sore throats, rhinopharyngitis, adenoids or hypertrophy of the tonsils, and the author feels that appendicitis represents an inflammation in a small gland unfortunately situated next the peritoneum. All the infectious diseases can leave their impression on the appendix and favor its chronic inflammation. The diseases cause more or less active inflammation of the lymphatics, swelling of the lymph glands and irritation of the appendix, which may be considered as a lymph gland. Indiscretions in diet, irritating foods, excessive eating, poor mastication, and meat diet are predisposing causes of chronic appendicitis. They cause fatigue of the digestive tube, inflammation of its mucosa and an intoxication of its lymphoid elements. The author gives as part of the complex and varied symptomatology, normal or altered facies, paleness, yellow tint, change of expression, habitual thinness, insufficient or irregular appetite, dyspepsia, digestive fever, frequent disturbances of digestion, attacks of urticaria and constipation—a very constant

symptom. At times there is a catarrhal jaundice or a slight yellow color of the skin which shows involvement of the liver. Paroxysmal or cyclic vomiting is often an expression of chronic appendicitis. Alternating pallor and redness of the face, cold extremities, palpitations, and dyspnea on exertion are circulatory disturbances accompanying this condition. Often cases are suspected of tuberculosis. Some children show arrested development. There is a nervous form, exhibiting neurasthenia, discouragement, idleness and carelessness. The author advises operation in the great majority of cases. In order to avoid acute crises he recommends operation on the chronic cases.

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### THE THYROID AND THE HAIR.

By Leopold, Levi and Rothschild: *Revue d'hygiene et de Medecine Infantiles*, 1910, Vol. IX, No. 2.

The authors found cases of atrichosis and alopecia which, beginning in youth, although the patients were past sixty years, would be cured by thyroid treatment. Cases of congenital alopecia were helped by thyroid treatment as were also those of acquired and spontaneous alopecia accompanied by asthma, migraine and rheumatism. They attributed a diagnostic value to thyroid treatment in such cases. They claim that falling of the hair may also be due to too much thyroid as it then indicates a better nutrition and the starting of new hair. The sign, described by them, of eyebrows poorly developed, indicates deficient thyroid and may be congenital or acquired. Early falling of the hair equivalent to migraine, asthma and rheumatism is due to "explosions of hyperthyroidism." The trouble with the irregular growth of hair may be the only sign of disturbed thyroid function or it may be one of a series of such indications.

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### SUPPURATION IN THE URINARY TRACT IN CHILDREN.

By H. Thiemich: *Jahrbuch für Kinderheilkunde*, Sept. 1910, Vol. LXXII, No. 3.

The author's cases in young infants were chiefly due to pyelocystitis and were of hematogenous origin. Pyelonephritis is more serious in infants than pyelocystitis, and occurs only in patients with a very low vitality. Since the urine does not collect in the kidney pelvis as in adults, diuresis will be able to flush out the kidney passages, but it will not clear out the kidney foci.



Little can be hoped from surgery and treatment should be directed to the underlying cause, and will be mainly dietetic. The author found some connection between his cases of pyelonephritis and exudative diathesis. Pyelitis in adults may result from a healed pyelonephritis or latent bacteriuria of childhood. In girls the infection probably ascends from the urethra, in boys it comes from the blood probably.

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#### INHERITED DIATHESSES IN CHILDREN.

By P. Heim: *Berliner klinische Wochenschrift*, Sept. 26, 1910, Vol. XLVII, No. 39.

Children in times past have done well on a diet of eggs, milk, meat and butter, and although some still thrive on such a diet, fully 70% of children so fed now would grow thin and lose appetite. If such children are fed with fat, or are overfed, there is likely to follow eczema, urticaria, prurigo, coryza or recurring pharyngitis, adenoids, mucous stools and bronchitis, while if fat be restricted the symptoms disappear. It is the fat of cow's milk which causes most trouble. Since, through Czerny's teachings, the children of Breslau, if they showed signs of exudative diathesis, have been treated with a proper diet, the number of cases of scarlet fever in that city has fallen greatly. The author believes that the severe cases of scarlet fever occur only in children with exudative diathesis with a neuropathic tendency which later is recognized by flabby muscles, floating tenth rib, nervousness and variable temperature. With this neuropathic tendency the change from breast to cow's milk is often of benefit. In the pure neuropathic constitution artificial feeding should be used. Any fat will be injurious to the exudative diathesis which accompanies it usually. These cases should have whey or mixed whey or buttermilk diet, but they are little benefited by change in diet and are usually carried off by some intercurrent infection. Heim believes that in the future, study of these constitutional tendencies will greatly benefit the health of the coming generations.

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# The Cleveland Medical Journal

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## EDITORIAL

### A Reactionary Board of Health.

Recent developments in Columbus have caused much disgust among those who desire that public health affairs should be administered on a basis of efficiency rather than politics or personal preferences. During the last year there has been a marked change in the personnel of the Ohio State Board of Health due on the one hand to the death of two of the members, and on the other to the appointment of Mr. J. W. Hill, of Cincinnati, formerly active in connection with the Philadelphia Filtration Plant. After these changes a committee was appointed, consisting of Mr. Hill and Dr. Warner, the Columbus member of the Board, to investigate the Department. The



method used in the investigation was a preliminary examination of the financial end followed by an inspection of the secretary's office, in one part of the capitol, of the laboratories, in another part, and of the Engineering Department, a block away. The entire trip, including stops, took less than an hour, indicating the degree of thoroughness. A few days later 11 members of the three staffs, including the Director of the Laboratory and the Medical Inspector, were given two days notice of dismissal. Such action connotes only two possibilities, the one that the conditions found were so rotten that immediate housecleaning was imperative, the other that the Board appreciated that if time were given to inquire into their motive, the plan would miscarry. Explanations were at once requested, both by the men dismissed and by those interested in the efficiency of the Department, and if the matter were less serious the contradictions would be amusing. We hear from one source that the staff was not accomplishing the work, was not advancing as fast as the Board desired, and should therefore be replaced. We hear that there was not enough work to occupy the staff, and so little to be done that they were unable to spend the appropriations. We hear that on the basis of economy the staff is to be permanently reduced. The discrepancies need not be emphasized.

Passing by the assertion that there is not enough public health work in the State of Ohio to occupy a staff of 12 men, absurd on its face, the most important of the reasons alleged is the lack of progress in the Department. Personal investigation, covering a period somewhat longer than that used by the Committee of the Board, shows certain facts worthy of notice. At the time of the appointment of the late Chief of Laboratories, there was great need for reorganization, and Mr. Rickards was called from his position in Boston to take charge. Since then the laboratory has expanded from small, cramped quarters to occupy the entire end of the top floor of the Capitol. Modern methods of technic, of bookkeeping, of record keeping have been established. A competent, whole-time chemist has replaced one who used much of the laboratory time in private work. The outfit distributing stations throughout the State have been largely increased and the use of the laboratory has doubled. As at present arranged it is an efficient working laboratory with excellent opportunities for research along the lines of improvement of methods, and analysis of records. The Chief of the Labora-

tory has been appointed Managing Editor of the Journal of the American Public Health Association, so that that Society has been brought more closely in touch with the local department. Through articles and discussions at the various meetings of the Association the Laboratory Department is favorably known throughout the country. In a similar way the Engineering Department has been made prominent by the loan of the Engineer to the Havana Health Department for a year as Adviser, and by his published articles and coauthorship in books on sanitary engineering. And here is the rub. Our Board is self-confessedly opposed to the attendance of any of the staff at national or international hygiene meetings. It feels that as soon as a man has achieved sufficient prominence to receive their approval he knows all that it is necessary to know about his subject, and should thereafter confine himself to the execution of the routine already learned. This attitude is happily obsolete among associations of intelligent men, and we had supposed our Board to be in this class.

Let us follow further the attitude of the Board towards the advancement of public health in the State. A sign of their deep interest is that in the recent conference of the Board with representatives of local Boards of Health, there was only one session, the first, in which any of the members except the secretary were present. In spite of adequate powers given by the acts of the Ohio Legislature, sewage disposal conditions so bad as to necessitate the exclusion of milk from the district were whitewashed until the institution of suits made action necessary. Although in connection with one of the recent epidemics of typhoid for which the State is noted, the official report of the State investigator shows the fouling of a stream a short distance above the water intake, no action was taken to enforce removal of such pollution. Owing to the attitude of the Board to the laboratories and the consequent lack of inspectors, samples of water from supposedly infected supplies are sent by the owner against whom complaint is made, though it is obvious that it is to his interest to have the sample good. In spite of such things, the Ohio Board has been favorably known, on account of the valuable work done along experimental lines in times past, and the fact that heretofore it was apparent that efficiency was desired.

What then is to be the future policy of the Department?



It appears on the face of present conditions that progress is no longer to be the keynote. The divisions to which the reputation of the Board has been due are to be curtailed and hampered so that they will sink to mere routine examinations of such material as is sent in, to official approval of plans urged by friends of the Board, and to a rapid return to the old conditions such as are still a matter of reproach in many States. Is it that the Board feels that activities which do not emanate directly from them have a tendency to place their deep and abiding interest in the public health in the shade, or is it that they contemplate filling the positions now made vacant, and such others as may later be vacated by personal or political appointees? It is of course obvious that after the gross discourtesy of a dismissal at two days notice without adequate cause, no one would accept the positions unless assured of permanency through some cause other than efficiency. What is to be the fate of the Secretary? He may be removed by a majority vote of the Board, and it is obvious that a man who has spent much energy in his long and honorable career as Secretary, who has just been president of the American Public Health Association, must be looked on with disapproval. It may be that to have been removed from office by the State Board of Health of Ohio will come to be a sort of diploma of efficiency, a recommendation to places of trust. Letters from men concerned with public health in other States indicate that the disgust is wide spread, and the matter should not pass without protest on the part of the profession to the man in whose gift lie the appointments to the State Board.

R. G. P.

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### Light and Shadow—and Pellagra.

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The human mind is too greatly attracted by the sensational. It has been so constantly hyperstimulated that only the momentary glare of a sudden flare creates a response—the softer haze of a well-tended blaze has become a subliminal stimulus. Too constant a worship of foreground and high lights is apt to destroy the appreciation of background and of the beauties that may lie in shadow.

Only a very short while ago pellagra furnished much excitement. For newspaper reporters, for magazine writers, even for medical journal editorialists it had its brief but brilliant day. Upon every case of chronic eczema we cast the eye of suspicion

and contemplated the time that must elapse before the diagnosis could be confirmed at autopsy. So soon as it became evident that we would not all die immediately of the disease, pellagra lost its charm. At the present moment we wonder how completely the same eczematous individuals, whom so recently we suspected of being pellagrous, would be cured by a single injection of salvarsan. Perhaps it is just as well that the average mind so readily alters its enthusiasms—it gives the unaverage mind which does things through steady plodding a better chance to work unmolested. Pellagra having disappeared from the ephemeral literature one can lay aside the daily paper and the monthly magazine long enough to learn that the disease has not been entirely forgotten, that some substantial progress is tending toward a better understanding of the condition.

Hurd (*Journal of Experimental Medicine*, XIII, 1911, 98-114), from a histological study of 11 cases, concludes that the changes which occur in those structures usually involved in pellagra—skin, gastro-intestinal tract and nervous system—are similar. "Pellagra is a disease in which, under the influence of some toxic substance or microorganism, there is an altered function on the part of epithelial tissues throughout the body, rendering them less resistant than normally to the action of different injurious agents." According to this view the skin lesions follow a primary alteration in the epidermis, permitting a transmission of the ultraviolet rays of sunlight. These rays, not transmitted through normal epidermis, act in a harmful manner upon the tissues of the corium and produce degenerative and inflammatory changes, which later give way to chronic reparative changes. In the gastro-intestinal tract the epithelium is similarly primarily altered, so that the tissues become susceptible to the action of agents—the ordinary intestinal flora—not normally harmful. For the production of symptoms referable to the nervous system an altered metabolic activity of the nerve cells is suggested. Hurd's views are interesting and are valuable in that they attempt to supply for the various manifestations of pellagra a common basis. That they clear up the etiology or advance much our knowledge of the actual pathogenesis of the disease appears doubtful.

Raubitschek (*Centralbl. f. Bakt. etc.*, I Abt., Originale, LVII, 1911, 193-208), in an investigation into the pathogenesis of pellagra undertook first the experimental examination of those



theories which had been previously proposed. His negative findings, following apparently carefully controlled experimentation, are extremely valuable, even if such positive conclusions as he reaches shall lack future confirmation. Bacteriological examination of good and bad corn, of polenta made from both, and of the intestinal canal and tissues of pellagrous individuals resulted negatively and offered no support whatever to Ceni's belief in the etiological relation of species of the usually non-pathogenic molds, *Penicillium* and *Aspergillus*. Serological study showed the absence of specific precipitin, complement fixation and anaphylaxis reactions. Specific toxins, which alone might produce pathological changes, were vainly sought for in naturally spoiled corn and in that artificially inoculated with pure cultures of the various organisms isolated from spoiled meal. Even anaphylaxis, which the latest mode makes responsible for everything, from hay fever to drug rashes, that cannot be readily explained otherwise, having failed him, Raubitschek had left only sunlight. Properly grateful for even so small a favor, he obtained positive results. That sunlight plays some part in pellagra has been long known. The skin lesions develop upon exposed portions of the body, they become less marked during the winter and undergo exacerbation with the advent of spring. The intestinal symptoms, even the mental manifestations may ameliorate during the winter months.

Aschoff, in 1908, postulated that in pellagra an intoxication, due to the ingestion of spoiled corn, renders the skin more susceptible to the action of sunlight. An analogy was found in fagopyrism. Albino animals, fed upon buckwheat and subjected to sunlight, lost their hair, became emaciated, developed paralyses and died. Similar animals upon a mixed diet in the presence of sunlight and those fed buckwheat alone and kept in the dark remained normal. From buckwheat there can be obtained a substance which is apparently a vegetable lipochrome. Hausmann, investigating what he termed a condition of photodynamia, found that the injection of fluorescing solutions into animals resulted, when the animals were exposed to light, in erythema, illness and death. From spoiled corn Lombroso had obtained a deep red colored substance which is absent from good maize. Upon these facts Raubitschek has built his theory of the photodynamic etiology of pellagra.

Animals, albino and colored mice, rabbits and guinea pigs,

were fed corn under the most varied conditions. Those white animals which were fed the grain and were subjected to strong sunlight soon became hyperexcitable and emaciated, the ears and nose became hyperemic, convulsions and paralyses were followed by death. Colored animals receiving corn alone and subjected to light, albinos receiving mixed diet in the presence of light and albinos fed corn in the dark remained well. The part played by intensity of sunlight appears from the fact that during February and March albinos kept in the sunlight developed no symptoms. Attempts to produce symptoms by the injection of the red colored oily substance obtained from spoiled corn resulted negatively. Dissection showed that the material remained unabsorbed in the tissues at the point of injection. Corn from which this substance had been extracted had no deleterious effects when fed under the same conditions as were followed by death when untreated corn was used.

Raubitschek has attacked the problem of the pathogenesis of pellagra from a new standpoint. His published results are striking and it is to be hoped that they will be confirmed. There may be some question, of course, as to whether the disease produced in animals was of the same nature as pellagra in the human being. Even if it shall be shown that his results cannot be interpreted as the experimental production of pellagra they add much of importance to the too little understood pathological action that sunlight may exert. Raubitschek's work is much more fundamental than that of Hurd. The results of the two investigators are not, however, at variance and can readily be correlated. The former attempts to explain what it is that, in the terms of the latter, causes the change in epithelial tissues which renders them more easily injured.

O. T. S.

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### **The New Hospital for Contagious Diseases.**

The lack of available hospital facilities for the care of contagious diseases arising in the city has, hitherto, been a sad commentary on the boasted progressiveness of Cleveland's municipal administration.

Fortunately, at last, we have a new hospital, well planned, substantially built and favorably situated for the care of such endemic contagious diseases as any large city always has in its midst, and, further, capable of being made available for any unexpected epidemic that may arise.



Situated on the grounds of the City Hospital on Scranton road, at a considerable distance from all the other buildings the new Contagious Hospital meets, almost ideally, the great advantages of isolation and an abundance of fresh air and sunlight. The new buildings comprise essentially three separate structures; the administration and executive building, and two wings of two stories each containing the four wards.

The administration building includes, in the basement room, the kitchens, serving rooms and dining rooms; on the first or ground floor, which is reached by a short flight of steps, the executive offices, reception room and quarters for the house physicians and the Matron in charge. On the second floor are the rooms for the nursing staff. In order to reach the wards, which run off at a right angle from either end of the administration building and stand fully 150 feet apart, it is necessary to go out of doors along an open though covered corridor; and in order to go from a lower to an upper ward it is again necessary to go out of doors and up an open though covered stairway. Each ward is an exact duplicate in arrangement and detail of construction, containing accommodations for 25 patients, 100 in the entire hospital, and it will therefore suffice to describe briefly the plan of a single ward in order to get a fairly accurate conception of the whole plant.

In the basement of each wing, containing its two wards, is placed the electrical and ventilating machinery, the latter especially representing the most recent advances in the field of hospital ventilation. All air taken in is thoroughly filtered by passing through wet filter beds before being delivered to the wards. In the basement floor, at the end of the western wing, is placed the large steam sterilizing plant of sufficient capacity to take in at the same time a dozen or more mattresses together with a large amount of other material, linen, etc.

On entering a ward one comes first into an outer vestibule, from which two doors open into the ward proper, one directly into the dressing room for the visiting and service staff, the other, a large double doorway for the entrance of patients, opening directly into the corridor of the ward. On admission a patient is at once assigned a bed in one of the individual rooms or in one of the open wards at the end of the corridor, or, if the diagnosis is at all uncertain, is carried directly to the observation room situated next to the main doorway but shut

off from the corridor of the ward proper. Here a patient can be observed under isolation as long as may be necessary. The visitant enters, as noted, directly into a dressing room, where the sterilized gowns and caps are kept, and must then pass through a room containing a steam sterilizer and on into the main corridor of the ward.

Each ward is planned with a wide central corridor, opening off of which on either side are first the service rooms and then the individual rooms for patients and the necessary bath rooms; each room has its own toilet closet. This corridor ends at the entrance to two open wards divided by a central wall, these wards in turn opening into a sun room. About centrally placed, off of the main corridor on either side and reached by a hallway, there are in addition two open air porches. The construction throughout is of the most modern design. The floors are of a dull red, specially guaranteed, compound which seems to meet admirably the necessary requirements of hardness, resiliency and ease of keeping clean. The walls are of a hard cement, finished perfectly smooth, having no corners and easily cleaned. The system for sterilization of clothing, linen and utensils is throughout most complete, and no efforts have been spared to make the hospital in every way a model of its kind.

While it is true that the inception of the Contagious Hospital dates back a number of years, the profession of the city should not forget that its final completion and equipment is due to the untiring efforts of Mr. Jackson, of the Department of Charities, of Mr. Hogen, of the Department of Public Safety, and lastly, but by no means least to Dr. J. D. McAfee, Superintendent of the hospital, to whose unselfish and untiring devotion are very largely due the strides forward which have so marked his administration of the City Hospital.

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### Prevention of Infant Mortality.

The first annual meeting of the American Association for the Study and Prevention of Infant Mortality was held at Baltimore, November 9 to 11, 1910, and was a decided success when one considers that but 12 months were allotted to those in charge, not only to lay a good foundation, which is so very important for the future of the society, but also to make the meeting "go." The attendance was large and attentive, and the exhibits extensive and exceedingly instructive. Every one who



was aware of the position regarding vital statistics that the United States holds, as compared with other civilized countries, went home convinced that no country stands below us in this respect—not even Turkey. This fact, together with the obvious lack of adequate work by some of the municipal health offices, and an utter lack of any work at all on the part of most of them, made many of those present hearty advocates of a Federal Health Department.

When one recalls the one sided and narrow type of campaign carried out but a few years ago, in all but very, very few cities—i. e., simply the distribution of bottled and tubed milk to every and any one—one cannot help but feel that great progress has been made in the right direction. In order, however, to develop this important movement rapidly and properly, it is absolutely necessary that more well equipped medical men take an active interest in the work. The basis of any preventive health work must be the sound knowledge of conditions as found by scientific research. Therefore, the medical man must be the head of the plan, closely and efficiently assisted by nurses and social workers, and he must not simply play a minor part in the work of associations fighting infantile mortality, as is almost everywhere true at present in the United States. This, together with the fact that the municipalities, either directly or indirectly, carry practically the entire burden of this activity, is the big difference between the work in this country and that in Germany, and the progress made in "Deutschland" shows the value of such a type of organization. The power and good that can be carried out by the social workers of this country is enormous. All that is required is that their efforts be directed into the proper channels, in order to prevent, to say the least, an enormous loss of valuable energy.

For a healthy development of the campaign against infantile mortality in the United States the following are now urgently needed: (1) Reliable vital statistics; (2) adequate and efficient activity of the health authorities, be they federal or municipal; (3) a uniform method of educating the public; (4) instruction of girls during their last year at school in the elementary hygiene of infancy; and (5) last, but by no means least, a modernly equipped institution for research work and instruction of physicians, nurses, students and nursery-maids.

H. J. G.

## Department of Therapeutics.

Conducted by J. B. McGEE, M. D.

**Pulmonary Edema:** Alfred Stengel, in the January number of the *American Journal of the Medical Sciences*, considers the treatment of paroxysmal pulmonary edema. It may be accepted as probable that some increase of vascular permeability may be a subsidiary cause in cases of recurring pulmonary edema, but it would seem unlikely that such a state of affairs could develop suddenly and as suddenly subside. A more reasonable view is that a temporary pulmonary engorgement, acting in conjunction with an increased or established vascular permeability, is the important cause. As to treatment, the prompt effect of a hypodermic injection of morphin in cases of cardiac asthma led him to use the same remedy in one of the earliest cases of paroxysmal pulmonary edema that fell under his notice. The result was so striking that he has since used the same plan and has found this so satisfactory that it has never been thus far necessary to employ any other remedy except as an adjuvant. Some of the cases had large numbers of attacks, and eventually died, but there never was any difficulty in controlling the attacks themselves with morphin, either alone or supplemented with less important drugs. When the fatal termination occurred it usually resulted from gradually increasing failure of cardiac compensation. In some of his cases atropin was combined with the morphin in the hypodermic injections, but on repeated occasions morphin alone was used to test the matter and was found quite as efficient as with the addition. Therapeutists have uniformly recommended atropin to cause a drying of edematous conditions of the lung, and the drug has therefore suggested itself, although it is difficult to appreciate in what manner such an effect could be brought about. When it was used independently of morphin he found that its effects were not striking, as for example in one case in which the duration of the seizure was eight hours. In a number of subsequent attacks of apparently equal severity a single injection, or at most two injections of morphin with small amounts of atropin sufficed to break up the seizure within an hour. In a few instances it seemed to him that the injections of morphin with small amounts of atropin acted more satisfactory than injections of morphin alone, but he has come to the very positive conclusion that the atropin is of very secondary importance. Hewlett is one of the very few authors recommending the use of morphin in these cases, and is most enthusiastic in its praise. In one of his cases he used morphin followed by atropin, but found that the latter had no noticeable effect. In eight remaining attacks in the same patient he used morphin alone and found the patient invariably comfortable and out of danger in from one-half to three-quarters of an hour. In another of his cases, during his absence, a medical colleague was called in and employed various restorative measures with little effect. Upon Hewlett's arrival, three hours after the onset, he immediately injected one-quarter of a grain of morphin and within a half hour the patient was comfortable, quiet and of good color. It is difficult to fully explain the action of morphin in these cases, but there is undoubtedly in many of the patients an element of shock and mental disturbance which may be mitigated by the use of the morphin; it may also quiet restlessness and relieve muscular spasm of the extremities. In some of his cases in which a nurse was in constant attendance he has left directions for (1) the immediate administration of aromatic spirits of ammonia upon the first suggestion of an attack, to be followed by (2) an injection of morphin sulphate  $\frac{1}{4}$  grain with atropin sulphate 1-250 grain when the first definite symptoms appeared, and (3) the subsequent repetition of morphin and atropin after 15 minutes, and later injections of strychnin and nitroglycerin. This plan served to control many threatening paroxysms before they had time to become severe.



**Arsenobenzol:** William S. Gottheil, in the *Medical Record* for Dec. 31, reports his experiences with this new remedy, his observations differing somewhat from the unreservedly laudatory and almost hysterical praise with which it has generally been received. He reports quite fully 25 cases and has endeavored to preserve an impartial attitude in judging results. Our estimate of the action of a newly proposed remedy for syphilis is made by comparison with what we should expect from the older method of treatment in similar cases. Analyzing his list it is evident that arsenobenzol exercises a distinct and powerful immediate curative effect on the manifestations of the luetic disease. Out of the entire 25 cases there is not one that showed an unusual or astonishingly brilliant result. It seems premature for the present to attempt to give the indications for the use of arsenobenzol in syphilis, but it is his opinion that it is not as yet the treatment of choice in the ordinary run of cases. These statements are based on our present knowledge of the drug, being as yet without data as to the future fate of patients treated with arsenobenzol. He mentions incidentally that four patients absolutely refused reinjection. He formulates these statements based on a comparatively limited experience: (1) Arsenobenzol is of undoubted efficiency in syphilis of various forms, more especially in early cases, and in mucosal lesions. (2) Its immediate effect may be better in some cases than that of mercury; in others it is slower and less certain; in some cases it fails. (3) It must be used with care since we are by no means fully informed as to its effect on the kidneys and other internal organs. (4) It should never be given in ambulant cases or in office practice; the patient should be carefully examined before it is administered and should remain in bed under observation for several days afterward. (5) It is indicated in especially severe and malignant cases, in which mercury has failed, and in other instances in which there are reasons for unusual antiluetic measures. (6) While the luetic symptoms usually recede after one or two doses, we are as yet without knowledge as to the permanency of its effects.

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**The Wassermann Reaction:** Thomas MacRae, in the *New York Medical Journal* for Dec. 31, reports the results he has obtained with the Wassermann reaction following the administration of the Ehrlich-Hata remedy "606." Kreuz results show the Wassermann reaction negative in from four to five weeks. In a recent report Gennerich concludes that patients treated with mercury a short time before receiving "606," react quicker and more favorably, both clinically and serologically. He advises that, if the cases are clinically and serologically active after three weeks, the dose should be repeated. If the reaction persists after three weeks the spirochaetae probably are not destroyed. He has treated over 80 cases, in all of which, except three, the Wassermann reaction has remained negative. MacRae states that his series of cases is too small, the time under observation has been entirely too short, and the figures published in the literature are too vague for definite conclusions. He, however, tentatively advances these views. The probability is that should "606" prove harmless, future medication will combine "606" and mercury in selected cases. Perhaps a course of one, two, or more injections of "606" will be given, antedated and followed by mercury. No patient should be treated without previously testing the Wassermann reaction and each case should be followed in its course with the test repeated at reasonably short periods. Negative reactions after "606" should be followed over a similar length of time as with mercury: negative phases, the so-called precocious reactions, must be ruled out. The certain small percentage of active tertiary cases with negative Wassermann reactions must have the indications for "606" treatment more clearly brought out: the demonstration of spirochaetae in such cases is not always possible. In certain cases of obscure affections of the nervous

system, giving a negative Wassermann reaction but with an antecedent history of lues, clinical results have apparently justified the use of "606."

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**Cardiac Tonics:** The *Therapeutic Gazette* for December considers editorially the use of the galenical preparations for cardiac tonics as compared with the active principles. At varying intervals medical literature contains communications from clinicians and laboratory investigators upon this important subject. The general consensus of opinion seems to be that it is of vital importance in the use of digitalis, that the greatest care should be exercised that only an active preparation of this drug be employed. Records innumerable may be pointed to in which the tincture, the infusion, and even the powdered digitalis have proved, when carefully tested, although their source seemed excellent, to be greatly lacking in physiological activity. These facts, combined with the additional fact that in many cases of cardiovascular disease it is desirable to administer drugs by means of the hypodermic needle rather than by mouth, have led many practitioners to the employment of digitalin, digitoxin and strophanthin, and some of them have claimed that the results produced have been excellent. Experimental investigation has seemed to prove that the use of strophanthin, either by the mouth or by the hypodermic needle, is exceedingly unreliable since the drug is decomposed in the stomach or in the subcutaneous tissues, and that if good effects are immediately and certainly required this glucosid must be given intravenously. It is conceivable under certain circumstances that such an intravenous injection may wisely be resorted to, but we think it may be stated without fear of contradiction that few physicians would care to resort to this somewhat heroic method. We also think it may be asserted without fear of adequate contradiction that the great body of the profession believe that preparations made from the whole digitalis leaf, representing therefore a combination of all its active ingredients, give the best clinical results in medicine. It has long been known that squill has an action upon the heart muscle closely allied to that of digitalis, and Turnbull proves pretty conclusively that full doses of this drug may produce the same untoward effects on the heart that are often caused by digitalis, although these irregularities are usually unaccompanied by any discomfort. Further, it would seem probable that the partial heart block which develops from very full doses of digitalis or squill, arises as a result of depression of the function of conductivity of the auriculoventricular bundle by the increased action of the vagus and very slightly, if at all, by the direct poisoning of the fibers of this bundle by the drug itself. As digitalis is a drug which is often used to meet desperately critical conditions, it behooves the physician to be careful as to the product he employs.

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**Leukemia:** In the *International Clinics*, Vol. IV, Series XX., Henry K. Pancoast contributes an article on the treatment of leukemia by the Röntgen rays, and presents his personal observations in connection with the management of these cases. In the first place an acceptance of the views prevailing at the present time concerning the pathology of leukemia implies a conception of its nature as that of a widespread malignant disease, with the primary foci of cell proliferation in the bone marrow while the splenic and lymphatic enlargements represent secondary foci of proliferating cells originally derived from the bone marrow, but subsequently augmented by further deposits brought from the same source by the blood stream. On the basis of such a conception, it would seem reasonable to suppose that, in order to attempt a permanent cure of the disease, the primary object of the treatment should be the inhibition of further cell proliferation in the bone marrow. This would seemingly be accomplished more directly by the exposure of the bones themselves, than by limiting the treatment almost entirely to the secondary enlarge-



ments, where, though it produces a somewhat similar inhibitory effect in the primary foci, it does so in an indirect manner through the production and subsequent action of leukocytic substances. Secondly, the direct exposure of the bone marrow would seem likely to induce a more powerful inhibitory effect than these leukocytic substances, and he is led to believe that not only is this true, but that the effect is more lasting as well. Thirdly, as the direct inhibitory effect of the exposure of the bones alone seems to prevent, or at least to limit further metastasis, we are enabled to postpone the direct applications to the spleen and other enlargements, until a later period when such exposure is comparatively safe. In this way the dangerous and frequently fatal toxemia, which is so apt to follow the early radiation of the spleen and other enlargements is entirely avoided. The results achieved by this method, though by no means satisfying as yet, have, on the whole, proved far superior to those generally effected by the older method. Continued experience leads him to believe that frequency is one of the most important factors in successful treatment. Except in instances of severe toxemia, daily applications can not be too strongly advocated. Toxemia is an indication for a temporary lessening of dosage, and the direct exposure of the spleen or other lymphatic enlargements should be carefully avoided during the early period of the treatment. All that can be conscientiously claimed so far for x-ray treatment, aside from the temporary symptomatic cures, may be regarded as an inhibitory influence whereby life has been prolonged for variable but definite periods of comparative comfort.

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**Headache:** *Therapeutic Medicine* for December comments editorially on the treatment of headache. The treatment of the headache commonly encountered in people otherwise well is first considered. It is merely a common sense proposition that those headaches which result from frequenting stuffy, ill-ventilated places, such as subways and the theatre, call for nothing but a change in the patient's habits. The same is true of headaches which are the result of living in close rooms. Heavy hats and much hair—particularly that used so extensively by women to supplant their natural endowment, or lack of endowment—are factors the elimination of which would cure many a cephalalgia. The headache due to mouth breathing must, of course, be removed through appropriate attention to adenoids, tonsils, or nasal obstruction. The severe and persistent headache of syphilitic endarteritis or meningitis calls for very active antisyphilitic medication, not only with mercury (and "606") but with large doses of iodid of potassium; here it will be necessary, of course, to use the coal tar products and probably morphin until the specific treatment yields results. As to the headache due to the degenerative arteritis of senile atheroma, this is often relieved by attention to high blood pressure, though one must be careful about lowering the pressure too much in these cases: careful rational treatment here may avert an apoplexy. What we call soreness of the head, while it comes under the caption of cephalalgia, is really extracranial and is due to neuritis. We must here try to get at the cause of the neuritis, and remove that instead of giving pain-relieving drugs only. When the pain is decidedly localized, very severe and very persistent, defying treatment, we have to think of abscess, tumor, and even of aneurism; or syphilitic nodes may be found. About the commonest cause of occasional headache is intoxication referable to the alimentary tract. The treatment of this is embraced in the administration of a brisk purgative. A large number of headaches are accounted for by the abuse of tea and coffee. In persons of sensitive nervous organization these drugs are undoubtedly causative of many a cephalalgia. As to the abuse of the coal tar products, such drugs certainly wreck the vasomotor system, and the writer has noted that systematic users of bromo-seltzer are about the worst sufferers from daily headache. The oligemic headache from acute hemorrhage is best re-

lieved by opium. Robinson states that these remarks may seem trite, but the subject is one which admits of occasional restatement.

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**Paralysis Agitans:** William N. Berkeley, in the *Medical Record* for December 24 contributes further notes on the treatment of paralysis agitans with parathyroid glands. Without going into the literature of the subject it is enough to say that tetany is related to these glands, and it would seem that paralysis agitans is possibly due to some chronic disorder or disease of them as well. His first cases were treated with commercial parathyroid gland. This worked well in a few cases, but was found so variable and uncertain in its action that it had to be given up. He next tried a preparation of properly identified gland rubbed up in the crude fresh state to a dry powder with milk sugar. This was distinctly better, but still seemed to be variable and unstable. Later, he tried a nucleoproteid solution of the parathyroid made up by Beebe's method and preserved with a few drops of chloroform in the bottom of each bottle. This gave still better results, but he has devised a modification of Beebe's process, yielding a powder rubbed up with milk sugar as a menstruum and dispensed in bottles of 60 capsules (an average month's supply). Each capsule contains 1-50 grain of parathyroid nucleoproteid. The average dose is two per day, sometimes less than this when the patient is sensitive to the action of the remedy. This preparation is the best he has so far tried, and will give satisfaction not only in Parkinson's disease but in almost any form of tetany if the stomach can retain food, otherwise a sterile hypodermic preparation of the nucleoproteid must be used. In paralysis agitans there are no special contraindications though some patients complain of "nervousness," inability to sit still, and an aggravation of their habitual constipation after a few days' dosage. Nothing is necessary in these cases except to diminish the dose, and increase again more slowly. Little benefit can be expected of a satisfactory character except from small doses continued over a long period of time—three months to a year. He has treated upwards of 60 cases; he finds that between 60 and 65% of those who have given the remedy a fair trial have spoken favorably of it and have continued the treatment. More than a dozen who began three or four years ago have greatly improved and are now uncomfortable only when they are without the medicine. With such a percentage of benefited cases as this, there seems no longer any reasonable doubt of the etiologic relation between the disease and the remedy. The hope seems justifiable that, by further study, it will be finally possible to cure paralysis agitans with parathyroid gland as surely as cretinic idiocy is cured with thyroid.

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**Drug Skepticism:** The *Medical Review of Reviews* for December presents in its editorial columns a most satisfactory summary of some of the causes which are responsible for drug skepticism. It may prove of great practical utility, for on finding the causes we may be able to point out the way towards removing them, or some of them at least. Of course one of the great causes for drug skepticism resides in the drugs themselves; that is the utter ineffectiveness of drugs in some diseases. When a young drug enthusiast, fresh from college, gets his first case of cerebrospinal or tuberculous meningitis, or sarcoma, or carcinoma, and sees the utter inability of drugs to influence these conditions his faith receives a shock which is likely to lead him to unwarrantable extremes. Another great and important cause will be found in the natural variability and changeability, and therefore uncertainty of drugs and their galenical preparations. There are conditions of hypochlorhydria, in which hydrochloric acid gives prompt and grateful relief, but when the doctor administers his hydrochloric acid in a mixture of rhubarb and soda, and fails to get the expected and promised relief, then it is not the fault of the hydrochloric acid; the fault lies in



the doctor who spoiled the acid by neutralizing it with sodium bicarbonate before giving it to the patient. Again when the prescriber, wishing to obviate the burning produced by a silver nitrate injection, orders it along with some cocain hydrochlorid and fails to get any astringent effect from the silver, the fault is not with the drug. The condition of the gastro-intestinal canal is very often responsible for the apparent inefficiency of a drug. Some physicians have even been known to complain of the worthlessness of quinin in malaria. Why? Because it was administered when the patient was constipated, the liver congested and the portal circulation sluggish. Had only a good cathartic been given before ingestion of the quinin the prescriber would probably not have had occasion to rail at the inefficiency of the latter. This applies to many other remedies. They are administered when the gastro-intestinal canal is not in fit condition for absorption, and then the drugs are blamed. In true cholera infantum, especially in aggravated cases, it is worse than useless to give drugs by mouth or rectum as absorption is impossible; the drugs can not reach the circulation, and the only rational way to administer them in such conditions is hypodermically. Hypodermoclysis, therefore, proves a true life saving measure in cholera infantum as well as in cholera asiatica. The conclusions are that among the causes which contribute to an unjust drug skepticism (because there is such a thing as a just drug skepticism) are: the use of uncertain and variable drugs; unfamiliarity with the subject of incompatibilities; prescribing drugs physiologically or therapeutically antagonistic; administering drugs by mouth or rectum when the absorptive function of the gastro-intestinal canal is either in abeyance or destroyed; the use of insoluble pills or tablets which pass the canal unchanged; the substitution of one drug for another; and last, but not least, the prescribing of the wrong drug.

### Department of Pharmacy.

Conducted by H. V. ARNY, Ph. G., Ph. D.

**Dispensing Difficulties:** At a meeting of the Kings County Scientific Society, J. L. Lascoff (*Pharmaceutical Era*, 44, 20) discussed several unusual prescriptions encountered in his practice. One calling for mercuric chlorid, potassium iodid, syrup of ferrous iodid and water can be dispensed as a transparent light green liquid if the ingredients are strictly pharmacopoeial; but if the potassium iodid, like most of the average quality found in the market, is alkaline, a cloudy liquid, finally depositing a brown precipitate, results.

Another prescription called for fluidextract of cubeb, tincture of hyoscyamus, potassium citrate, distilled water and glycerin. The resinous fluid extract is insoluble in the water, but if this and the tincture are emulsioned with acacia, glycerin and water, and added to a concentrated watery solution of the citrate, a slightly uniform mixture is obtained.

A third called for protargol, cocain hydrochlorid and water. Protargol, like most silver salts, is precipitated by chlorids, so the dispenser used the proportional quantity of cocain nitrate and a clear solution resulted.

In capsules calling for pyramidon, antipyrin, salol, codein and caffen citrate, it was found that when the powders were triturated together and then put into capsules, the powders eventually liquefied, spoiling the capsule. On the other hand, when the salol, codein and caffen were triturated with a little sugar of milk (two grains to each capsule) and then with the antipyrin and lastly with the pyramidon, entirely stable capsules resulted.

An ointment of petrolatum, chloroform, menthol and oil of mustard was most satisfactorily prepared by melting the petrolatum in a corked wide mouth bottle, dissolving the oil and menthol in the chloroform and mixing this solution with the petrolatum.

A solution of sodium salicylate, sodium bicarbonate and water will become brown and eventually black, if made from ordinary chemicals; if from strictly pharmacopoeial salts the blackening is retarded five or six days. The discoloration is due partly to traces of iron in the bicarbonate and partly to decomposition of the salicylate by the alkali.

The seventh prescription called for pills, each containing 0.3 grams ichthyol. If this is massed with the ordinary absorbent diluents, very large pills are the result. If, on the other hand, the ichthyol is evaporated on a water bath, thus losing 45% of its original weight, small nicely rounded pills result. (Any of the activity of the ichthyol lost on evaporation?—Abstractor.)

Another prescription, directing terpinol, sodium benzoate, heroin, and powdered glycyrrhiza was found very difficult to mass, since the sodium benzoate refused to blend with the other ingredients. By emulsifying the terpinol with a little calcined magnesia and water and by adding the benzoate dissolved in a few drops of water, a uniform brown mass resulted.

The last prescription discussed was one calling for oleoresin of aspidium, oil of turpentine and castor oil. This should never be dispensed, as Cushny and other authorities report that the filicic acid of the oleoresin dissolves in the castor oil and being absorbed, produces blindness.

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**Coloring Poisonous:** Following the plan of coloring bichlorid Solutions: antiseptic tablets blue, Hibonneau (*Gazette Medicale de Paris*, through *Druggists Circular*, 55, 24) advises that all bichlorid solutions be colored blue, and that in proportion to the bichlorid strength of the solution; using two milligrams of methylene blue to each liter of 1-1000 solution.

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**A Cherry Laurel Water** This water when it has been distilled from Incompatibility: copper stills precipitates morphin hydrochlorid from solutions, while if made in a glass distilling apparatus it does not do so. Mythenaere (*Bull. Comm.*, through *Druggists Circular*, 55, 25) finds this due to traces of copper, and advises distilling in glass only.

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**Methylene Blue** The fact is well known that when methylene blue in Urine: is being taken, the urine is colored greenish blue and in such urine indican has been frequently suspected and reported. Raubenheimer (*American Druggist*, 57, 369) finding no condensed reference to tests for detecting methylene blue, summarizes the following:

1. While both indigotin and methylene blue are soluble in chloroform, amyl alcohol and nitrobenzol (hence can be "shaken out" with these solvents) indigotin is soluble in carbon tetrachlorid, while methylene blue is not.
2. Addition of hydrochloric acid bleaches a methylene blue urine.
3. It also bleaches a methylene blue chloroform layer, shaken from urine.
4. Sodium hydroxid, but *not* potassium hydroxid destroys the blue color of the urine.
5. Sodium hydroxid added to a methylene blue chloroform layer turns it violet purple.
6. The urine is preserved by methylene blue and its green color disappears after standing in a corked bottle, returning after the bottle is reopened.

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**Tyramine:** Barger (*Apotheke Zeitung*, through *Merck's Report*, 20, 20) reports another well defined and active principle which he



has extracted from ergot. It is a colorless water-soluble crystalline powder, melting at 268 to 270° C, and is chemically parahydroxy-phenylethylamin,  $C_8 H_{11} ON$ . It lowers the blood pressure and induces uterine contraction.

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## Academy of Medicine of Cleveland.

### CLINICAL AND PATHOLOGICAL SECTION.

The seventy-fourth regular meeting of this section was held at the Cleveland Medical Library, Friday, January 6, 1911, R. K. Updegraff in the chair.

C. A. Hamann presented a specimen showing torsion of the great omentum. The symptoms were those of appendicitis and followed the reduction of a hernia which had always been easily reduced. At operation a large quantity of bloody fluid was found in the abdomen with torsion and infarction of the omentum. He also showed a little toe which had been removed for a "Charcot joint."

The program, given under the auspices of the Alpha Omega Alpha Honorary Society, was as follows:

The Principle of Protection and the Principle of Exertion in the Treatment of the Failing Heart, Lewellys F. Barker, Professor of Medicine, Johns Hopkins University, Baltimore. (To appear in full in the Journal.)

C. F. Hoover, in opening the discussion, pointed out the radical difference in our present views as to cardiac lesions as compared with those of even ten years ago. Formerly the condition of the valves was considered of paramount importance and the changes in the heart muscle were thought to be usually secondary to the valvular affection. The old idea that the heart was simply a pumping station and that the circulation was simply a question of hydraulics had been proved insufficient to explain clinical problems.

J. P. Sawyer said he was pleased that rest in bed had been so strongly emphasized in the treatment of cardiac lesions. The present tendency was to resort to physical methods, such as mechanotherapy and balneotherapy, and he believed great advances would be made in handling such patients when the correct dosage of these measures was more fully understood.

A. Maschke said that while hypertrophy was usually considered a constructive, and dilatation a destructive process it was very often difficult to tell which was present in a given case. He wished to ask if any of the newer methods of diagnosis would help to differentiate the two.

J. J. R. Macleod said that the importance of the effect of muscular work upon the circulation should be emphasized, as it must have a distinct bearing upon the treatment. Investigations in Great Britain and Germany have been carried out to determine how much work, such as marching, as in the case of soldiers, was beneficial to the individual. The results showed that the effects of the muscular work were largely determined by the previous training. Two types of exercise were tried: hard work of short duration and less strenuous but more prolonged work. Running upstairs caused a great increase of pulse rate and blood pressure, both of which returned to normal in a few minutes in a well trained man but not for an hour, perhaps, in an untrained man. Sudden lifting of a heavy weight caused a tremendous rise in blood pressure but no acceleration of the pulse. The pressure returned to normal quickly in a well trained man; in a poorly trained one, the high blood pressure might cause collapse of the circulation. With more prolonged exercise very complex conditions were produced: a rise in

blood pressure occurred, distress ensued and then readjustment occurred, the pulse rate remaining the same with the blood pressure falling to normal—in other words the individual got his “second wind”. This was partly due to the rise in temperature, the falling in the peripheral resistance and the lowered tension in the  $\text{CO}_2$  in the blood. Great care was, therefore, necessary in determining just what form of exercise and how much, in a given case of heart disease, should be used.

G. N. Stewart believed that the question of hydraulics of the circulation was just as important as it ever was. It was true, however, that simply determining the systolic and diastolic arterial pressure would sometimes not give one a good idea of the efficiency of the circulation; knowledge of the venous pressure was also necessary. What might be normally an adequate supply of blood might go to crippled organs,—crippled on account of some interference with the hydraulics of the circulation—and yet that organ might be unable to profit by such normal circulation.

L. Barker, in conclusion, said that in employing the newer methods of investigation one was prone to overlook the importance of fundamental principles and neglect the simpler means of diagnosis such as percussion, palpation, etc. Thus the diagnosis of aneurysm by means of the x-ray was so simple that there was danger of neglecting the investigation of the time honored physical signs associated with this disease. In regard to dilatation and hypertrophy, both were at times beneficial. The size of the heart was not a constant factor, even in normal individuals, and variation might occur in direct ratio to the amount of metabolism taking place. There was, therefore, danger at times of interfering with nature's methods if we undertook to treat the heart simply because it was dilated or hypertrophied.

#### ACADEMY MEETING.

The eightieth regular meeting of the Academy was held at the Cleveland Medical Library, Friday, January 20, 1911, the President, W. B. Laffer in the chair.

H. J. Gerstenberger showed an infant suffering from scabies. The rash, which began when the child was three weeks old, rapidly extended over the whole body and was rather atypical, resembling a luetic eruption. The mother was also infected with scabies.

The program was as follows:

1. Relation of Typhoid in Cleveland to the Water Supply, R. G. Perkins. (Appearing in full on page 81).

2. The Pollution of Lake Water, W. A. Evans, Commissioner of Health, Chicago.

The local conditions in regard to sewage disposal and water supply in the Chicago district were detailed and an interesting description was given of the work of the committee, representing the four States and the numerous municipalities bordering on Lake Michigan, which was appointed to investigate the contamination of the lake water by sewage. Great emphasis was laid upon the responsibility of the physician to report cases of communicable disease to the health authorities, as if this were not done the effort to control the spread of these diseases would be seriously handicapped. If the physicians did not perform the duties expected of them the profession would surely lose the confidence of the general public and the management of sanitary matters would be lost to them and placed in the hands of laymen.

C. E. Ford, in the discussion, drew attention to the recent decision of the Supreme Court of Minnesota in which damages against a muni-



cipality were awarded to an individual who had contracted typhoid from an infected municipal water supply. Such a precedent clearly indicated the necessity for the provision of pure water.

M. Friedrich thought the Academy of Medicine should go on record as advising some definite action to correct the existing conditions of sewer contamination of our drinking water. The problem could be solved as it had been in various European cities, e.g., Munich, Vienna and Berlin. In Berlin the question of removing the city to another and more sanitary site so as to lessen the prevalence of typhoid had been seriously considered at one time; instead, a filtration plant was established with very satisfactory results.

P. Harvey said that as the Academy was largely responsible for the personnel of the Board of Health of this city he would bespeak the aid of all the members in making the statistics of the Board of value by promptly forwarding reports of all communicable diseases.

J. H. Lowman pointed out that the typhoid mortality previous to 1875 in hospitals was sometimes as high as 25%. The present mortality rate was very much lower due to improved methods of treatment, especially to hydrotherapy.

J. G. Spenser thought that the high mortality of former years was due to the greater contamination of the water supply, wells being then largely in use which were frequently infected by adjacent privy vaults.

W. H. Merriam said that Munich offered a striking example of what might be done to eradicate typhoid by sanitary measures. Formerly Munich had had a great deal of typhoid, now there was practically none. During 20 months that he had recently spent there he had not seen more than five cases altogether in a hospital of 340 beds.

W. J. Mayo, of Rochester, Minn., said he had been much impressed by the remarks of Dr. Evans upon the necessity for full reports to health boards of all communicable diseases by the physicians. The profession was on trial by the public and if we did not measure up to a high standard we should be discredited in their eyes and fail to maintain our leadership in these matters. In Minnesota the State Board of Health was intimately connected with the State University and the teaching of hygiene and matters relating to public health was closely bound up with medical education. Universities should offer special courses of instruction in such matters and men of special training in the profession should occupy the positions on boards of health.

W. A. Evans, in conclusion, said that in Cleveland the contamination of the lake water must persist, at least for some time, and until then some sort of purification of the water supply was indicated. At least for the present the hypochlorite method seemed to offer the best means available.

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### Book Reviews.

**The Practice of Surgery.** By James Gregory Mumford, M. D., Visiting Surgeon to the Massachusetts General Hospital; Instructor in Surgery in the Harvard Medical School; Fellow of the American Surgical Association, etc. Octavo of 1015 pages with 682 illustrations. Philadelphia and London, W. B. Saunders Co. 1910. Cloth, \$7.00 net; half morocco, \$8.50 net.

As the title page indicates, this is a treatise on the practice of surgery, and the consideration of the principles of surgery has been largely omitted; it is therefore evident that the work is not intended as a textbook for the beginner, but rather, as a work for the more advanced student and practitioner. The more important and common surgical affections are

discussed first and a small amount of space is allotted to the less frequent diseases. As is unavoidable in a single volume, the consideration of numerous topics is necessarily brief and compendious, but one will find a large store of valuable and practical information in this book, presented in a very readable and pleasing style, and embodying the results of recent progress and development in surgery.

The opening chapter deals with appendicitis, which as the author tells us, "more than any other acute disease, interests all classes of the community." He deprecates closure of the wound in cases in which the appendix is removed in the acute stage (prior to suppuration) and says the wound should always be drained; if the technic recommended by the author on page 34 is followed it is doubtless advisable to drain and not sew up the wound, but if the treatment of the stump is proper, drainage is quite unnecessary and the wound should be closed.

Succeeding chapters deal with the small intestine and colon, rectum and stomach. The author apparently does not value laboratory tests very highly, at any rate the only one noted is the guaiac test for blood in the stomach. The details for the performance of stomach operations are not fully given, the reader being referred to textbooks upon operative surgery for these. There is a good presentation of the subject of hernia. About 100 pages are devoted to the surgery of the female genitalia and the more important diseases and operations are discussed; he disbelieves in the occurrence of primary ovarian pregnancy—a condition that we had thought had been conclusively demonstrated.

To the genito-urinary organs 119 pages are devoted; the statement that after pyelotomy for stone "the wound always leaks urine for several weeks," will hardly be approved by many surgeons. In the article on cleft palate one misses a description of Lane's admirable operation. In the chapters on the surgery of the brain the writer deplores the rarity of "neurologic surgeons." The subject of minor surgery takes up the last 220 pages; this is in many respects the most valuable portion of the book and is full of practical and wise suggestions.

While no effort has been made to give an extensive bibliography, it is evident that he values the contributions of the Boston surgeons highly, to judge from the frequency with which he refers to their writings. The book is admirably gotten up; typographical errors are very few and the illustrations are excellent.

C. A. H.

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State Board Examination Questions and Answers of Forty-one States and Two Canadian Provinces. A Practical Work Giving Authentic Questions and Authoritative Answers that will Prove Helpful in Passing State Board Examinations. Third edition, revised and greatly enlarged. 1910. William Wood & Co., New York.

This book is reprinted from the *Medical Record* and consists of questions and answers, or references for answers to textbooks (ordinarily the ones published by this firm). The arrangement is orderly and the typography satisfactory. The answers are hardly scholarly, not always accurate and seldom detailed; but probably sufficient for the purpose sought, namely to pass examinations. Of the book itself there is little to say but one might say much of the condition which makes it profitable to print such a book. The chief item of interest is to read over the questions in any given subject in the different States and note how the same question occurs time after time. It seems unfortunate that the character of State board examinations is such that the method of preparation to which this book appeals is sufficient to allow a man to secure a license. Such a book is but another argument of the need for practical and demonstrative examinations rather than the textbook method now prevalent.

F. C. W.



Modern Treatment; the Management of Disease with Medicinal and Non-Medicinal Remedies. By Eminent American and English Authorities. Edited by Hobart Amory Hare, M. D., Professor of Therapeutics and Materia Medica, Jefferson Medical College, Philadelphia; Physician to the Jefferson Hospital, etc. In two very handsome octavo volumes, comprising 1,800 pages, with numerous engravings and full-page plates. Price per volume in cloth, \$6.00, net; half morocco, \$7.50, net. Lea & Febiger, Publishers, Philadelphia and New York, 1910.

The prime object of the study of medicine is the alleviation of suffering and the cure of disease. At the present time there is a renewed interest among the medical profession in the study of therapeutics. This is shown by the fact that besides the numerous textbooks that have been published, there have recently appeared two systems, which attempt to cover the field of treatment in a very thorough manner. The treatment of disease today differs very materially from that of 25 years ago. Then the physician depended solely upon drugs, hydropathy, electrotherapy and climatotherapy, whereas in recent years there has been in many diseases an approach to specific treatment in the form of sera and the so-called vaccine therapy.

In the present system Hare has chosen a well recognized authority for each subject. Such a plan in general is quite successful, but in any case a book written by a number of men, no matter how carefully it is edited, lacks uniformity and this is true in the present volume.

The book is divided into three parts. The first part deals with general considerations such as modern pharmacology and its bearing on practical therapeutics, the combination of drugs, prescription writing and the untoward effects of drugs. The second part includes the treatment of disease by non-medicinal measures, climatotherapy, general exercise, mineral springs, hydrotherapy, electrotherapy, the use of Roentgen rays, the rest cure, nutrition and foods, hygienic measures, serum therapy and vaccine therapy. The third part is devoted to the treatment of infectious diseases.

The reader will be disappointed if he expects to find in these pages any new or original work, but the book will form a very good work of reference and will doubtless be a welcome addition to the physician's library. It can be heartily recommended.

J. P.

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Salvarsan or "606" (Dioxy-diamino-arsenobenzol). It's Chemistry, Pharmacy and Therapeutics. By W. Harrison Martindale, Ph.D. Marburg, F. C. S., and W. Wynn Westcott, M. B. Lond., D. P. H., Coroner for North-East London. Paul B. Hoeber, New York City. 1911. Price \$1.50, net.

This little book which is a résumé of much of the literature that has appeared in medical journals during the past year, concerning Ehrlich's new contribution to chemotherapy contains 77 pages and five illustrations. This new drug which must be regarded as still in the experimental stage has been given to the public without, in our opinion, sufficient data concerning its preparation, dosage and use. Articles in the medical press are seldom conservative, and the pendulum already swings from the ultra-enthusiastic partisan who sees in it a panacea for all ills syphilitic, to the denunciator who without practical experience, or without taking the trouble of investigation consigns it to the region of the host of specifics to which the arsenic compounds have largely contributed.

The medium course is unquestionably the right one and the authors, while not entering into practical considerations to the extent that further experience with its use would enable them to pursue, still give a comprehensive collection of many of the articles published on the preparation and use of this most unstable and as yet little understood compound. While nothing original is claimed, it undoubtedly presents

the subject in the most comprehensible form in which it has yet appeared in the English language. Its appearance is timely because there seems to be a general demand for all available information regarding this late product, and while in a few months its contents may be only of historic interest yet at the present time it is a wholesome book and one that may be pursued with profit by those who wish to familiarize themselves with the use of this drug.

W. T. C.

**Bismuth Paste in Chronic Suppurations. Its Diagnostic Importance and Therapeutic Value.** By Emil G. Beck, M. D., Surgeon to the North Chicago Hospital, Chicago, Ill. With an introduction by Carl Beck, M. D., and a chapter on the Application of Bismuth Paste in the Treatment of Chronic Suppuration of the Nasal Accessory Sinuses and the Ear, by Joseph C. Beck, M. D. With 81 engravings, nine diagrammatic illustrations and a colored plate. C. V. Mosby Company, St. Louis. 1910. Price \$2.50.

This book gives in detail various methods for the diagnostic and therapeutic use of bismuth paste. There are chapters devoted to special diseases, with a consideration of the best formulas to be used and a detailed description of the technic in each group of cases. The volume is well illustrated with photographs and x-ray pictures and is a very fair review of this method of diagnosis and treatment.

R. H. B.

**The Pathology of the Living and Other Essays.** By B. G. A. Moynihan, M. S. (London), F. R. C. S., Honorary Surgeon to Leeds General Infirmary; Professor of Clinical Surgery at the University of Leeds, England. 12mo of 260 pages. Philadelphia and London. W. B. Saunders Company, 1910. Cloth, \$2.00 net.

The little book is as easy reading as a novel, owing to Moynihan's pleasing style. In his essay on the Pathology of the Living he sets forth the present day trend in pathology, or rather pathological physiology, holding that the inaugural symptoms are the important ones not only in regard to diagnosis but also in drawing our attention to the lesion when correction is possible, before irreparable damage has been done. The other essays are rich in knowledge gained by years of practical work in abdominal surgery. The book being a collection of essays to a general audience is especially of value to the practitioner, but the surgeon will also find many helpful points in the surgery of the stomach and bile passages.

H. G. S.

**An Anatomical and Surgical Study of Fractures of the Elbow.** By Astley P. C. Ashhurst, M. D., of the Medical Department, University of Pennsylvania. Imperial octavo, 163 pages, with 150 illustrations. Cloth, \$2.75, net. Lea & Febiger, Philadelphia and New York, 1910.

The author received the Samuel D. Gross Prize of the Philadelphia Academy of Surgery for 1910 on account of this essay. This coveted prize, amounting to \$1500.00, is "awarded every five years to the writer of the best original essay not exceeding 150 printed pages, octavo in length, illustrative of some subject in surgical pathology or surgical practice, founded upon original investigations, the candidates for the prize to be American citizens."

The author's principle in the main is that in hyperflexion the bones composing the elbow joint are in such close approximation that this position cannot be obtained in fractures of the lower end of the humerus unless the fragments are in their proper situations; with perhaps the exception of a fracture above the condyles in which the gunstock deformity may occur. In hyperflexion we have the greatest stability; and "if the forearm be brought up in such a manner that its axis coincides with that of the humerus, the carrying angle will be maintained." In this position the tendon of the triceps acts as a sling and



the lateral ligaments as side splints to the fragments once they are placed in proper position and hyperflexion has been obtained. Every one interested in fractures will find this book the best on its subject.

G. N. M.

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The Non-surgical Treatment of Duodenal Ulcer. By George Herschell, M. D. (London). Published by Henry J. Glaisher, London.

This small volume is a reprint of an article which appeared recently in the *Clinical Journal*. It is clearly written in most readable style and covers the medical treatment in a thorough and most modern manner. The use of serum to stimulate healing being the most novel thing in the article and although not claimed as original by the author it deserves more than passing notice.

J. M. L.

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A Treatise on Diseases of the Skin. For the use of advanced students and practitioners. By Henry W. Stelwagon, M. D., Ph. D., Professor of Dermatology, Jefferson Medical College, Philadelphia. Sixth edition, revised. Handsome octavo of 1195 pages, with 289 text-illustrations, and 34 full page colored and half-tone plates. Philadelphia and London. W. B. Saunders Company, 1910. Cloth, \$5.00 net; half morocco, \$7.50 net.

This book is too well and too favorably known to call for any extensive critical review at this time. The last edition contains some new material and is brought up to date so far as conservative medicine will allow. It still contains some features we think might as well be omitted, such as the illustration of the use of the Finsen apparatus, which has never found much favor in this country. In the light of modern research we think the chapter on the treatment of syphilis might be strengthened in a few details.

The illustrations are plentiful and admirably adapted to illustrate the text, although the colored plates which are seldom satisfactorily reproduced in this country, are not in keeping with the general character of the work. The photographic reproductions are excellent. On the whole we can highly commend this admirable treatise as a textbook for advanced students and as a work of reference for practitioners of medicine.

W. T. C.

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The Practical Medicine Series. Comprising ten volumes on the year's progress in medicine and surgery. Volume IX. Skin and Venereal Diseases—Miscellaneous Topics. Edited by W. L. Baum, M. D. and Harold N. Moyer, M. D. Series 1909. The Year Book Publishers, Chicago, Ill.

This book is an abstract of the leading articles that have appeared during the year on the subjects of skin and venereal diseases. It describes various skin diseases as well as the new methods of treatment. Under the subject of Therapy of the Dermatoses, the application of liquid carbolic acid snow, skin varnishes, radiotherapy and actinotherapy are taken up rather fully. Various rare syphilitic conditions are described, together with the latest treatment, including "606". The book is illustrated by numerous photographs. The back part of this volume consists of miscellaneous subjects such as a discussion of an ideal medical school curriculum, various historical subjects, biography of famous medical men who have died during the year, and also a résumé of important medicolegal subjects.

W. C. G.

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The Practical Medicine Series. Comprising ten volumes on the year's progress in medicine and surgery. Volume X. Nervous and Mental Diseases. Edited by Hugh T. Patrick, M. D. and Peter Bassoe, M. D. Series 1910. The Year Book Publishers, Chicago, Ill.

This volume of the Practical Medicine Series furnishes some very instructive reading for any one at all interested in the subject of ner-

vous disease. A very fair choice has been made of articles appearing during the past year which merit a review, and the abstracts give a clear idea of the major points made by the original authors. Taken as a whole the volume seemed to read more easily than some of its predecessors, due in part, no doubt, to more care having been taken to avoid sacrificing clearness for brevity. C. W. S.

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A Manual of Diseases of the Nose, Throat, and Ear. By E. Baldwin Gleason, M. D., Professor of Otology at the Medico-Chirurgical College, Philadelphia. Second revised edition, 12mo of 563 pages, profusely illustrated. Philadelphia and London: W. B. Saunders Company, 1910. Flexible leather, \$2.50 net.

This work has been brought up to date by a review of much of the contents of the previous edition, and by rewriting the sections on tonsils and adenoid structures and additions to the articles on membranous rhinitis; nasal mycosis; septal perforations; leprosy of the nose, pharynx and larynx; etc. Changes have also been made in the formulary at the end of the volume, adding to its completeness and convenience for reference. In form, the book adopts that used by most other books on the subjects. The style is clear and concise and yet for the general practitioner and student, for whom the book is written, the articles are sufficiently full and complete. The differences between this and similar volumes are that the attention paid to therapeutics is rather greater than usual, and the history of many of the instruments used, of many of the operations, and some of the technic, is given. In some cases the prognosis of a condition is given in the words of a writer who was an authority before some of the newer operations were used. For those who are not familiar with the first edition, we might say that it is a volume of over 550 pages, that it is a decidedly good book on the subjects considered, and that it is exceptionally complete for the price. As a manual we recommend it heartily. W. J. A.

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The Care and Training of Children. By Le Grand Kerr, M. D., Brooklyn. Funk & Wagnalls Company, Publishers. 12mo, cloth, 75c net; by mail 82c.

The little volume is very full and is sure to be read with interest by parents and those interested in the upbringing of children. The chief value of the book lies in the fact that it might be given to any parent without fear of them taking it for a "family physician". The author has been most judicious in the choice of the material for the various chapters and deals with his subject in a sane and simple manner. J. M. L.

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### Acknowledgments

The Treatment of Syphilis by the Ehrlich-Hata Remedy (Dioxydiamidoarsenobenzol). A Compilation of the Published Observations by Dr. Johannes Bresler, Chief Physician to the Provincial Medical Establishment at Lüben, Silesia. Second edition, much enlarged with the portraits of Ehrlich and Schaudinn. Translated by M. D. Eder with an abstract of the most recent papers. Rebman Co., New York.

Makers of Man. A Study of Human Initiative. By Charles J. Whitby, M. D. (Cantab). With 47 halftone and other plates. Rebman Co., New York.

The Principles of Pathology. By J. George Adami, M.A., M. D., LL. D., F. R. S., and Albert G. Nicholls, M. A., M. D., D.Sc., F. R. S. (Can.). Volume II, Systemic Pathology. Second edition, revised and enlarged with 301 engravings and 15 plates. Lea & Febiger, Philadelphia and New York.



Public Health and Marine Hospital Service: Public Health Reports Volume XXVI, No. 1. Reprints from Public Health Reports Nos. 54 and 55. Public Health Bulletin No. 40.

Proceedings of the Fourth Annual Meeting of the Association of Life Insurance Presidents.

Reprints by: Leartus Connor, Detroit, Mich., A. R. Baker, Cleveland, Ohio and J. Thorington, Philadelphia, Pa., S. H. Blodgett, Boston, Mass., Bryan DeF. Sheedy, New York.

### Medical News.

Howard Dittrick has opened an office in the Kingmoore Bldg., 1110 Euclid Ave.

**Cleveland Medical Library Association Prizes:** The sum of \$150.00 having been offered to the Cleveland Medical Library Association by a generous donor to establish prizes for literary work, it has been decided that two prizes be offered, one of \$100.00 and another of \$50.00 for the best essays on any clinical subject in general medicine (including pediatrics), surgery or obstetrics. These essays must show the results of a comprehensive literary review on the subject selected.

Any member of the Cleveland Medical Library Association who has graduated within the past ten years, may compete for these prizes.

The essays or papers must be typewritten, must not exceed 4000 words, and must be presented to the Secretary of the Cleveland Medical Library Association without signature but with a quotation or motto for identification; the same quotation or motto, and the writer's name in a sealed envelope must at the same time be given to the Secreary, in whose possession they are to remain till the decision of the judges is made.

The papers must be in the hands of the Secretary of the Cleveland Medical Library Association by September 1, 1911.

There shall be three judges who shall be appointed by the Council of the Library Association.

The judges shall report their decision to the Council of the Cleveland Medical Library Association at the October Meeting.

The papers gaining the prizes are to constitute the program of one of the meetings of the Academy of Medicine and are subsequently to be published, first in the Cleveland Medical Journal.

**The Lakeside Hospital Medical Society** held the fifty-first meeting Wednesday, January 25, 1911. The program was as follows: Presentation of the following patients: 1. Case of Hypertrophic Cirrhosis of the Liver, C. F. Hoover; 2. Case of Infectious Biliary Cirrhosis of the Liver, C. W. Wycoff; 3. Case of Gumma of the Liver, W. S. Wyatt; 4. Case of Sloughing of the Breast following Infection, H. W. Masenheimer; 5. Case of Congenital Lues in a Child 12 Years of Age, H. S. Taylor; 6. Report of a Case of Carcinoma of the Ascending Colon, J. Graham; 7. Presentation of Pathological Specimens, E. P. Edwards.

**The Lakeside Hospital Alumni Association** held the annual meeting at the hospital, Wednesday, January 18, 1911. In the morning informal clinics of special interest were held. In the afternoon a surgical clinic upon The Open Treatment of Fractures with X Ray Plates Illustrating the Plating of Fractures by Lane's Method was given by Alexander Primrose, Professor of Clinical Surgery, University of Toronto. The business meeting followed at which the following officers were elected: President, H. L. Sanford; Vice-President, A. H. Bill; Secretary, E. L. Gilcreest; Member of Executive Committee, H. G. Sloan. The banquet at 7 p. m. was followed by an address by Prof. Primrose upon The Untoward Effects of Delayed and Incomplete Operations.

**W. C. Bunce, Oberlin**, left on January 21 for a month's vacation at St. Petersburg, Florida.

**The Muskingum County Medical Society** met at Zanesville January 11, 1911. The following program was presented: 1. An Etiological Factor in Nephritis, T. H. Infield. 2. Floating Kidney, E. M. Brown.

**The Erie County Medical Society** met December 28, 1910, and elected the following officers: President, M. J. Love; Vice-President, P. F. Southwick; Secretary, Fred Schoepfle; Censors, C. B. Bliss, F. M. Houghtalling and H. C. Schoepfle. The hour of meeting was changed from 3 p. m. to 8 p. m. on the last Wednesday of each month.

**Typhoid in Sandusky:** There were 28 cases of typhoid fever reported to the Health Officer between Jan. 1 and Jan. 24, 1911. Only 34 cases were reported during the whole year 1910, and 14 of those were imported. The explanation was that the filtration plant had been closed down for repairs and unfiltered water was being used. Before the filtration plant was installed two years ago there were from 40 to 60 cases of typhoid reported each month. After the installation of the plant this number immediately dropped to two or three and some months none, thus illustrating the value of these plants which the people oppose so vigorously on account of the expense necessary for their installation.

#### **Meetings of the Academy of Medicine of Toledo and Lucas County:**

The Eye, Ear, Nose and Throat Section met Friday, December 30, 1910. The General Subject of the program was Refraction: 1. Ametropia, J. H. Harvey; 2. Refraction without the Use of Mydriatics, W. W. Alderdyce; 3. Refraction with the Use of Mydriatics, W. H. Snyder; discussion opened by O. Landman and Chas. Lukens.

The Annual Meeting of the Academy was held Friday, Jan. 6, 1911. The following annual reports were presented: 1. The Academy, Charles F. Tenney, Secretary; 2. Board of Trustees, Auditing Committee, W. H. Snyder and J. L. Watson; 3. Pathology, J. G. Wright; 4. Medicine, H. E. Smead; 5. Surgery, L. F. Smead; 6. Eye, Ear, Nose and Throat, W. W. Alderdyce; 7. Milk Commission, W. G. Dice; 8. Defense League, W. J. Stone; 9. Public Health and Legislation, C. W. Moots. The following officers were elected for 1911: President, L. C. Grosh; Vice-President, S. S. Thorne; Secretary, C. D. Selby.

The Medical Section met Friday, Jan. 20, 1911. The program was as follows. 1. X-Ray Treatment of Epithelioma, E. D. Tucker and H. W. Dachler; discussion opened by L. M. Dolloway. 2. Sexual Repression in Hysteria and Psychoneuroses, Frank D. Ferneau; discussion opened by R. P. Daniells.

**The Tuscarawas County Medical Society** met at Uhrichsville, Tuesday, January 3, 1911. The program was as follows: 1. Diagnosis and Treatment of Fracture-Dislocations of the Spine, J. E. Groves, Uhrichsville. 2. Diagnosis of Incipient Tuberculosis of Bones and Joints, C. M. Shepard, Columbus. 3. General Discussion on the Etiology and Diagnosis of Scoliosis.

**A. J. Hammer, Toledo**, has been reappointed surgeon to the infirmary of Lucas County, for a term of two years.

**The Toledo Medical College** was destroyed by fire the night of January 8, 1911.

**Elmer J. McKesson, Toledo**, has moved his office from 214 Michigan Street to the Colton Building.

**Peter Donnelly, Toledo**, is on a foreign tour.



**Bert E. Leatherman, Toledo**, announces that he has taken offices in The Nicholas Building, his practice being limited to eye, ear, nose and throat work.

**G. R. Love, Superintendent of the Toledo State Hospital**, was elected president of the state hospital organization, at the annual meeting in Columbus in December.

**The Toledo District Nurses' Association** has opened an emergency hospital for children, where they will care for cases of adenoids, diseased tonsils, defective eyes and teeth.

**Toledo Has Many Defective Pupils:** The first official report of Toledo's new medical school examiner, Bruce Brockway, who began his work last May, showed a total of 517 pupils examined, of which 392 were found unfit to attend school, 18 of these suffering with pulmonary tuberculosis.

**Bernhard Becker, Health Officer of Toledo**, has issued a circular letter requesting that all cases of infantile paralysis be reported and isolated.

**The East Toledo Hospital** has added a 20-room annex.

**Louis Smead, Toledo**, has been appointed to the staff of St. Vincent's Hospital, succeeding James Donnelly, deceased.

**The Thaliens, an Organization of Toledo Young Women**, is waging a fight against tuberculosis by instructing the school children in the way of simple methods of prevention.

**The Semiannual Clinic of the Medical and Surgical Staff of St. Vincent's Hospital, Toledo**, was held January 19 and 20, 1911. A very satisfactory attendance was recorded.

**The Northern Tri-State Medical Association** held the twenty-seventh semi-annual meeting at Kalamazoo, Mich., Tuesday, January 10, 1911. The following papers were read: Ehrlich's Hyperideal, R. C. Shanklin, South Bend. The Influence of Glandular Pharyngeal Tissue (Waldeyer's ring) in the Causation of Rheumatism and Endocarditis, B. R. Shurley, Detroit. Prostatotomy by the Method of Goldschmidt, Charles M. Harpster, Toledo. The Diagnosis of Intestinal Perforation in Typhoid Fever, Sidney Dix Foster, Toledo. Some Clinical Aspects of Achlorhydria, Albion W. Hewlett, Ann Arbor. The Physician as a Business Man, W. F. Shumaker, Butler. Some Clinical Aspects of Acute Infantile Paralysis, Joseph A. Capps, Chicago. Goiter, Charles H. Mayo, Rochester. The Family Tendency to Disease, Archibald Church, Chicago.

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### Deaths

**Edward H. Trickle**, Cutler, Ohio, died January 8, aged 74.

**Jefferson B. Searce**, Chillicothe, Ohio, died January 8, aged 73.

**Harold D. Fitch**, Cincinnati, Ohio, died January 3, aged 26.

**B. F. Cessna**, Kenton, Ohio, died January 2, aged 85.

**Lewis A. Querner**, Cincinnati, Ohio, died January 7, aged 65.

**Asa Brayton**, Carey, Ohio, died January 11, aged 79.

**John I. King**, Burghill, Ohio, died January 3, aged 62.

**Charles E. McCormick**, Columbus, Ohio, died January 20, aged 46.

**Albert B. Barker**, Cincinnati, Ohio, died January 20, aged 73.

**John W. Bond**, Toledo, Ohio, died January 23, aged 86.

**Franklin J. Wittemore**, Toledo, Ohio, died January 27, aged 82.

**Harry S. Wetzel**, Dayton, Ohio, died January 19, aged 41.

**Christopher E. Corlett**, Cleveland, Ohio, died January 23, aged 33.

**Joseph A. Diemert**, Cleveland, Ohio, died January 22, aged 54.

# The Cleveland Medical Journal

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## The Untoward Results of Delayed Operations and of Incomplete Operations.

By ALEXANDER PRIMROSE, M. B., C. M. (Edin.), M. R. C. S.

(Eng.), Surgeon to the Toronto General Hospital; Associate Professor of Clinical Surgery in the University of Toronto.

The subject which I have chosen for my paper is of interest to every practitioner of Medicine, whether he be a specialist or engaged in general work. I speak from the standpoint of one who has confined his attention to general surgery for a considerable number of years, and there are one or two considerations which prompt one to choose this theme. In the first place, a surgeon, apart from his hospital wards, obtains his patients through a large number of practitioners, and it is quite obvious he must see a larger series of surgical complications than any of the individual physicians who may be of his clientele. It would consequently follow that the surgeon would be in a better position to argue from the general to the particular and would have impressed upon him for example the deleterious effects of undue delay in seeking relief by operation more forcibly than would be appreciated by the practitioner in charge of an individual case. Moreover it is a somewhat delicate matter, when the life of a patient is in grave danger, to argue as strongly as one should that the fatal result, which confronts one as a probable issue, might not have occurred had surgical interference been sought early enough. Many physicians are just as keen for early operative interference in these cases as the most progressive surgeon but

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*Address to the Lakeside Hospital Alumni Association, Cleveland, O., January 18, 1911.*



there still remain a number who unwittingly jeopardise the life of the patient by failing to appreciate the importance of calling in the services of a surgeon at a sufficiently early date. It occurs to me therefore that, when certain definite conclusions are arrived at concerning the necessity or otherwise of early operation, the surgeon should not wait to emphasize his opinions over the bedside of the patient but should state his views with no uncertain sound, bolstering up his arguments by reference to his own experience as set forth in his clinical records. The responsibility must be shouldered in individual cases by the physician and surgeon conjointly and whilst it would be an impertinence on the part of the surgeon to suggest to his colleague that, prior to the consultation, the treatment had been in his opinion along wrong lines, yet some opportunity must be taken to impress the profession with the logical conclusions which have been arrived at from the surgeon's standpoint and which would in his belief have changed the issue in many instances had the facts been appreciated by the medical attendant at an earlier stage in the case. There is another class to whom we owe a duty in this respect, I refer to the general practitioner in outlying districts in poorly settled portions of the country, where often, because of the distance to be travelled, or the expense which would have to be incurred, it is impossible to call a surgeon in consultation, and where the general practitioner himself must undertake the operative procedure when it becomes necessary. I believe these practitioners in country districts will sooner or later come to realize that in the cases to which I refer, early operation is not only the safer procedure but is always a simpler undertaking and is more likely to succeed if proceeded with before serious complications have arisen. Lastly I may point out that where surgical interference is undertaken late and fails, it is surgery that is blamed for the result when often the responsibility should actually lie with the medical attendant who has not realized that operative procedure was indicated at an earlier date in the case.

When one embarks on a consideration of this theme, one realizes that the whole field of surgery might come under review and generally speaking the moment any operation is demanded, then the sooner it is carried out the better. My object however is to deal mainly with a class of cases concerning which there has been considerable controversy in the past but about which there should now be absolute agreement. If that agree-

ment is to be reached however, it must be arrived at by careful study of the results obtained by the surgeon along with those obtained by purely medical means. To illustrate my meaning I may refer to appendicitis. A physician may have an extensive experience and he will tell you that he has never lost a case of appendicitis and yet he has seldom required the services of a surgeon. On the other hand if you ask any surgeon of experience today he will tell you of many lives lost because operation was delayed and one is convinced that if the physician mentioned above stopped seriously to consider the statistics which any general surgeon could furnish regarding operation in appendicitis he would never again let a patient with a definite attack go twenty-four hours without operation because the risk he runs is too great.

There are many emergencies in which the necessity for immediate operation is quite obvious. Thus when haemorrhage is taking place from a severed blood vessel it is obviously essential to control the bleeding point if possible. The necessity for immediate operation is quite as obvious in the case of severed nerves but this fact is perhaps not as clearly recognized. We may conclude too that immediate operation is indicated when a typhoid ulcer of the intestine has perforated, or if there has been a rupture of the stomach or intestine into the peritoneal cavity from any cause, traumatic or otherwise, or in a case of strangulated hernia. On the other hand there is another class of cases regarding which there must still be some controversy and concerning which very definite and very different views may be held by those who have studied such cases conscientiously and with ability from every point of view, such for example as the indication for operation in Graves's disease or the relief by operation of pyloric spasm in infants. I wish however to emphasize in this paper the deleterious effects of delayed operation and the baneful results of incomplete operations in cases regarding which there is perhaps less material for controversial argument but concerning which we must admit the results possible by surgical intervention are often not attained because operation is postponed unduly or carried out inefficiently.

I will confine my remarks mainly to two series of cases, first, those in which we undertake operation in inflammatory conditions and those in which we operate for malignant disease.



First, then, we may consider certain inflammatory conditions which do not brook delay. I have referred already to appendicitis and I may add a word or two further with regard thereto. One must appreciate the fact that the technique of the operation for appendicitis has been considerably modified of recent years and the effect of this has been to reduce the mortality more particularly in the cases operated on late. For example, we no longer wash out the peritoneal cavity but confine our attention to the seat of local infection, and provide drainage if necessary, being always careful to disturb the general cavity as little as possible. More recently the technique has changed as regards the treatment of the appendix in pus cases. At one time it was the rule when a localized abscess was discovered to leave the appendix, which, it was thought, might form part of the wall of the abscess. The argument was advanced that we should not destroy nature's barrier by excising the appendix. There are two considerations which however were forgotten in this routine, one is that the conditions necessary for confining the infection to a definite district are different in the closed peritoneal cavity and in the cavity where drainage is provided, and the other is that by removal of the diseased appendix the most important factor in maintaining the local infection is removed. We have learned by actual experience that it is best to remove the appendix and establish drainage; since adopting this method of procedure the writer has never seen general peritonitis arise from a local abscess and one finds that most surgeons are now adopting this view. There may be very exceptional cases where one cannot remove the appendix, such as in one instance where the caecum and surrounding structures were so oedematous that one was unable to locate the appendix after considerable manipulation, and one thought it prudent to desist, but these cases are rare and in the vast majority of instances the appendix can be and ought to be removed. In the author's clinic importance is also placed on the Fowler position and continuous saline injection per rectum in cases of general peritonitis.

Whilst however a better technique has lowered the mortality in advanced cases we still recognize the fact that the main cause of the fatal issue in individual instances is delay. One of the most recent analyses of a large series of cases is that of McWilliams of the Presbyterian Hospital, New York, for the years

1906 to 1909 inclusive. He reports the result of 1411 operations for appendicitis in that hospital. Of 512 operations in the chronic and relapsing condition there was a mortality of 0.5%. Of the 687 operations in presence of acute conditions there was a mortality of 9.8%. The following table shows that the mortality increases enormously after the first day of the disease.

Duration of Disease at the Time of Operation

Day of Disease	No. of Cases	Died	Mortality Per Cent	Combined Statistics	No. of Cases	Died	Mortality Per Cent
1	135	5	3.7	On or before the second day	280	14	5.0
2	145	9	6.2	From the third to the sixth day inclusive	251	32	12.7
3	103	8	7.7				
4	72	13	18.0				
5	55	8	14.5				
6	21	3	14.2				
7	48	10	20.8	From the seventh to the tenth day inclusive	79	16	20.2
8	11	2	18.1				
9	5	1	20.0	From the tenth to the fourteenth day inclusive	52	8	15.3
10	15	3	20.0				
11	4	1	25.0				
12	5	1	20.0				
13	1	0	.0				
14	27	3	11.1				
17	1	0	.0	All acute cases operated upon after the sixth day	156	21	13.4
21	5	0	.0				
Data missing	34	1	.0				

Totals 687 68 9.8

Our own statistics would conform very closely with the above, and the fact is generally recognized that the mortality increases with delay; yet this fact is not appreciated in its full significance, otherwise there would not continue to be so much delay in calling in the services of a surgeon. As already stated, the physician is naturally guided by his own experience, but we insist that the results of surgery must always be more conclusive because of the larger opportunities afforded for the study of the harmful effects of delay. A physician may carry a large number of cases through successfully without operation and may even be fortunate enough to have his late cases recover after a delayed operation, but the results of surgery show that he is courting disaster and will sooner or later come to realize by sad experience that the risk he is running is quite unjustifiable. In reviewing one's own records one finds that the harmful effects of delay are demonstrated in a variety of ways. Abscess formation frequently occurs with long continued suppuration and persisting



sinuses which after final closure leave a weak abdominal wall requiring repair for "postoperative rupture." One very common and fatal complication in delayed cases is perforation, and one may pause to enquire if it is possible to anticipate such a disastrous occurrence. The fact is, perforation occurs often in the most unexpected circumstances. A patient may have what is apparently a mild attack and after twenty-four hours the pain has become less, the temperature little elevated and the pulse normal, then possibly a purgative has been administered and perforation occurs, throwing the victim at once into a condition in which one realizes that there is grave danger of a fatal issue no matter how promptly the abdomen is opened. Here let me emphasize with all possible force the danger of a purgative in acute appendix cases; the possibility of such measures doing grievous harm is too well known to every surgeon. The purgative may induce perforation, or what may prove equally disastrous, the rupture of a localized abscess into the general peritoneal cavity. Quite recently the writer was arranging to operate for the radical cure of femoral hernia, two days before the date fixed for operation the patient was ordered a purgative, but before taking the medicine she telephoned to me that she had severe abdominal pain. She was instructed not to take the purgative until I saw her, and on examination, and after consultation with her physician, it was determined that she was suffering from an acute attack of appendicitis. I operated in the middle of the night and removed an appendix which might well have perforated had the purgative been given. She made a good recovery and the operation for radical cure of the hernia was successfully carried out three weeks later. I considered one had made a fortunate escape in avoiding the complication of appendicitis in an operation for femoral hernia, and it was fortunate, also, that the patient had sufficient prudence to ask my advice before taking a purgative when suffering from acute abdominal pain.

Incidentally one may remark that the whole difficulty in determining the time to operate in appendicitis is largely the difficulty in diagnosis. It is impossible to determine by the physical signs as to the nature of the individual attack, for example, whether the appendix is gangrenous or not. The pulse, temperature and leucocyte count are all useful clinical guides, but neither these nor the severity of the pain, nor of reflex symptoms of vomiting, etc., are sufficiently characteristic to assist us in diff-

erentiating the simple cases from those of the most dangerous form and until an accurate clinical diagnosis can be made our only safe course is to remove the appendix the moment a definite diagnosis of appendicitis is made. There may be some instances where the general condition of the patient, or his surroundings may necessitate delay, or may cause one to conclude that the direction of least risk lies in temporizing, but these cases are exceptionally rare.

What has been said regarding the effects of delay in acute appendicitis applies with equal force in other conditions within the abdomen. Thus, in cholecystitis, we have possibilities which are comparable to those presenting themselves in acute appendicitis, and whilst it is more rare to have a ruptured gall bladder than a ruptured appendix, yet it occurs occasionally, and it is gradually becoming recognized more and more widely by the profession that when cholecystitis presents acute symptoms operation should not be delayed. But further the persistence of chronic inflammation here should undoubtedly demand operative interference. The possibilities of acute empyema and perforation of the gall bladder must always be borne in mind as a complication in the course of chronic disease and many other serious conditions may manifest themselves, particularly when gall stones are present. I recently operated on a patient who had suffered for years from gall stone colic, and finally, during an acute exacerbation operation was undertaken; a large solitary stone surrounded by pus and mucus was ulcerating through from the gall bladder to the stomach where adhesions had formed. In another recent case the patient had suffered for ten years and for the past five years endured pain of great severity, at each attack necessitating large doses of morphia to control it. Operation revealed numerous gall stones (440 in all) with extensive adhesions of the gall bladder to neighbouring viscera. I need not multiply instances, but surely here again the enormous advantage of early operative interference is clearly demonstrated. Patients, too, may suffer for prolonged periods with stone in the common duct, and when finally operation is undertaken the duct is often enormously dilated, the gall bladder and ducts the seat of septic trouble and a mass of peritoneal adhesions gluing the various viscera together in an almost inextricable tangle. Further, these patients with gall stones frequently develop a pancreatitis and run considerable risk of cancer. On an average one in thirty cases of primary cancer of the gall bladder, according to C. H. Mayo, has



developed cancer as a local condition around a gall stone which has mechanically irritated some mucous area of the gall bladder tract.

Malignant disease: Turning now our attention to malignant disease, we again must voice the experience of all general surgeons in recording the many sad instances where delay is disastrous and often fatal. It is not necessary to dwell on this part of my subject, because the facts which one might illustrate over and over again from one's clinical records, are universally recognized by the profession. In this instance it is, perhaps, the laity who require to be educated as to their duty. The prevalence of cancer is observed more accurately than heretofore. The most accurate statistics are probably available in Great Britain, and Bashford, in the Third Scientific Report of the Imperial Cancer Research Fund, shows that the chance that a man over 35 years of age will die of cancer is one in eleven, and the chance of a woman above the same age is one in eight. Bashford has further come to the conclusion that "the number of deaths assigned to cancer increases from one country to another in a manner parallel with the increasing accuracy of the vital statistics of the several countries." Whatever may be the exact figures, it is obvious on the most superficial inspection that cancer is a very prevalent disease, and apparently it is on the increase, although Bashford is inclined to think that the most recent figures do not prove an actual increase in cancer, but that the apparent increase is due to the more accurate methods of reporting cases which at present obtain.

A large amount of work is being expended on the study of cancer in the laboratory, and much has been done to clear the ground for work which we are all optimistic enough to think will eventually prove of material benefit to mankind in the eradication of this wide spread scourge. Clinical experience has however offered abundant opportunity for observation as to the course of the disease, and of the results obtained by the treatment of malignant disease on a great variety of lines. Today we find surgeons practically unanimous in concluding that early and radical operation holds out the best prospect of cure. If we had to choose between the two we might urge that it is more important for the operation to be early than that it should be radical, because statistics have shown that in cancer of the breast at all events more cures are effected by early incomplete opera-

tions than by extensive late ones. It is therefore obvious that this doctrine should be taught the laity and that early relief should be insisted upon by the medical attendant in every instance. Formerly patients were sent to hospital for surgical treatment after the medical attendant had watched the growth carefully for weeks or months until he was quite sure it was malignant and demanded surgical interference. Now fortunately things have changed and patients are sent when a growth appears which may or may not be malignant. The surgeon operates and by quick section will determine beyond doubt the character of the growth and will act accordingly. Unfortunately however there are some in the profession who have not yet awakened to the importance of these observations and we must continue to reiterate facts until the victims of cancer will all find relief at an early date and will no longer present themselves when the hope of relief by operation has vanished.

One lesson surgeons are slow to learn, and that is the futility of operating in advanced cases when the possibility of eradicating the disease no longer exists. The advice of Hippocrates is still sound for advanced cases, when he says "It is better not to apply any treatment: for if treated the patients die quickly; but if not treated they will hold out for a long time." Let me illustrate my point by citing the case of a woman, æt. 48, who developed a tumour in the breast and was treated by Christian Scientists until the tumour assumed large proportions. When first seen by the writer the entire breast was a hard cancerous mass, adherent to the chest wall, and about to ulcerate on the surface, several secondary nodules existed in the skin near by, axillary and subclavicular glands were enlarged and the woman was markedly cachectic. I considered the case inoperable and refused to interfere surgically. She however was taken by her friends to consult a prominent surgeon in the United States, a man for whom I have the greatest respect for the important contributions he has made to surgery. To my surprise he attempted a radical operation but desisted after resecting a rib and finding the pleura involved. The patient died a few days afterwards in the hospital. Now I believe such operations do harm; the case undoubtedly was absolutely inoperable. If there is the least possible chance of benefiting a patient by operation nothing should dissuade us from doing so, as our patient's welfare is the only desideratum, but operation where no possibility of



success exists does harm in two ways, first, the public, who are uninitiated in the clinical course of cancer, think that if surgery has failed to relieve in such a case it is therefore valueless in any case, early or late; and again it deprives one of the opportunity of teaching the laity that it is possible to seek surgical aid too late for radical relief, and I believe much good will be accomplished if we refuse to operate in hopeless cases, and if by this means we teach a lesson which may have the effect of saving other victims from such a sad fate. This point was emphasized very strongly by C. H. Mayo in his address as Chairman of the Surgical Section of the American Medical Association recently.

In order that a radical operation should be done early, the diagnosis must be made early. This is by no means an easy matter in the majority of instances. Take for example breast tumours in which we suspect malignancy by noting the age of the patient, the connection with the skin, the consistence of the tumour, the existence of palpable axillary glands, etc., yet the most astute diagnostician will fail at times to establish a correct diagnosis. Surely under these circumstances it is justifiable to remove a benign growth where the possibility of malignancy exists rather than run the risk of a mistaken diagnosis. This fact is emphasized when we consider the absence of risk in removing such a growth and the further stern fact that of all cases of carcinoma of the breast operated on we can only count on from 20% to 40% of cures. All surgeons are optimistic enough to believe that the percentage of cures will be increased as we educate our patients to seek relief early in the disease. It is always prudent to have a quick section made at the time of operation in doubtful tumours and since the introduction of this routine practice much good has been accomplished. Let me further urge that all tumour tissue removed should be subjected to routine histological examination. This is done as a matter of course in every well appointed hospital clinic, but let me pause to ask why it is not done in every section of the country. Our students are taught the use of the microscope and the value of histological examination in various pathological processes with a thoroughness which never hitherto existed and yet it is astounding to find how few of our younger graduates in country districts possess a microscope! One finds however that the man who continues the study of minute anatomy after he had entered practice will command the confidence of the public more than his colleague

who fails to do so and thus it is obvious that sooner or later the microscope will become, as it should become, as indispensable in the armamentarium of the practitioner as the clinical thermometer or the stethoscope, and it will be appreciated, also, that it is in the selfish interest of the practitioner to use it.

The importance of routine histological examination may be instanced in the case of one of the author's patients, a woman *æt.* 50, who when first seen gave a previous history of enlarged glands on both sides of the neck. At the time she sought advice she had a temperature of  $104^{\circ}$  with a painful oedematous swelling on the right side of the neck where I opened a postpharyngeal abscess. Nine days afterwards I found a similar abscess on the left side of the neck. Four months subsequently, because of tumefaction in front of the sterno mastoid muscle, I made an incision and cut through what was apparently dense cicatricial tissue. Subsequent microscopic examination of the tissue revealed, what we had hitherto not suspected, nests of epithelial cells embedded amongst dense fibrous tissue. A search was now made for the primary growth which was found to exist in the larynx below the vocal cords and which subsequently infiltrated the pharyngeal wall.

Whilst thus insisting upon the necessity for microscopic study, and more particularly the great advantage of a quick section during an operation for tumour, let me utter a note of warning and urge that in a percentage of cases, fortunately a very small percentage, the most expert histological pathologist may mislead one. This was well demonstrated in the case of a woman *æt.* 49 with a tumour of the breast which she had noticed three years previously. There were palpable glands in the axilla and the mammary tumour which lay immediately beneath the nipple appeared to be attached to the skin although no marked retraction of the nipple existed. I did the usual radical operation with removal of the breast and pectorals and of the axillary glands. The pathologist first reported the breast tumour a chronic mastitis without malignancy, but on subsequent examination of the axillary glands he found they were carcinomatous. Subsequently a careful search over the breast tumour was successful in finding undoubted carcinoma in a small focus surrounded by a large amount of chronic inflammatory tissue. Again one must not jump to the conclusion from the study of such a case that the key to the situation is to be found in the enlarged gland, because it is



well known that indurated glands may be purely inflammatory in conjunction with a primary malignant growth. This is notoriously the case in malignant growth of the stomach and should always be considered when determining the limitation of operative interference.

One should bear in mind that in various manifestations of malignant disease the magnitude of the secondary growth may entirely overshadow the primary, and the latter has in many instances been entirely overlooked, as in the case cited above. I might give other instances from my note book illustrating this point. Here then it is one's duty, if a complete eradication of the disease is to be accomplished, to make a thorough search for the primary growth when we find carcinoma in the glandular tumour. If it is essential in such cases to find and remove the primary growth it is equally clear that where we are dealing with a primary cancer growth we should not wait for gross secondary manifestations in the lymphatic glands, but should proceed at once to remove the glands and gland-bearing fascia of the region likely to be involved. The importance of this is evidenced all too frequently in the past as in the case of a man 64 years of age who had a carcinomatous ulcer the size of a twenty-five cent piece removed from the inner side of the cheek and then came to the hospital fifteen months subsequently with a large secondary growth in the submaxillary glands, necessitating an extensive dissection with little hope for radical cure. Or again the necessity for this method of procedure may be demonstrated in another way when after removal of the primary growth and of the glands and fascia, which show no gross signs of secondary involvement, we find on microscopic section that cancer cells are already present in the glands. A single instance of this latter possibility is sufficient argument to show conclusively that the removal of the glands, whether involved or not, should form a part of our routine practice in dealing with malignant disease.

The results obtained by the modern method of performing a radical operation for cancer of the breast fully justify the routine removal of the whole breast, the pectorals and the axillary glands and fascia, but the earlier a radical operation is undertaken the more the prospect of cure is enhanced. Yet this fact is not appreciated to the extent it should be, thus quite recently I operated on a woman 77 years of age who had had a small tumour removed from the breast six years previously, local recurrence

was first noted some five years after operation with secondary axillary growths. Had a radical operation been done in this woman's case at the outset one believes that recurrence would have been most unlikely, particularly at her age. Too often these small growths are excised and not even submitted to microscopic examination. We too frequently see the pernicious results of such practice and one feels it one's duty to protest as strongly as one can against it. The fact is a practitioner may have only one or two such cases in a long period of years and he is perhaps not to be blamed if he fails to realize the gravity of such a case and the responsibility he assumes in treating it. It is the duty of the surgeon therefore to use every opportunity to teach the lesson of the necessity for early and radical measures in such cases.

Reference has been made in this paper to malignant disease in the neck. Crile has urged with force that cancer in the head and neck is primarily a local disease, and that "the collar of lymphatics of the neck forms an extraordinary barrier through which cancer rarely penetrates." On these grounds he has urged that the technique, if mapped out on the basis of logical argument, must be a "block" dissection of the regional lymphatic system as well as the primary focus, applying the same principles here as those which are now universally adopted in the excision of the breast with the pectorals and lymph glands for cancer. We concur most heartily with these conclusions, experience teaches us the wisdom of such a course, and the absolute folly of incomplete operation. Important nerves, blood vessels and muscles must be sacrificed if need be to secure our end, the only limitation being the danger to life or the degree of disability ensuing from our interference with important structures, the length to which we must go in the individual case being determined by consideration of the extent of the disease and the dissection necessary to ensure its complete and permanent eradication.

There can be no doubt of the fact that the necessity for early and radical operation in the conditions cited in this paper is more fully recognized every day. This fact is evidenced in McWilliams' table quoted above, in appendicitis for example where we find that by far the largest number of operations were performed early and comparatively few instances of late operation are recorded, but the table also shows that as many cases (145) were delayed to the second day as were operated upon on the first day, in spite of the fact that the mortality was twice as



great on the second day. Comparatively few however were postponed until the fourth day when the mortality was five times as high. Similarly in malignant disease opportunity for early interference and the performance of radical operations with the utilization of every means at our disposal for an accurate diagnosis are fortunately much more common than heretofore. Nevertheless we frequently have patients brought to us for operation at an advanced stage of the disease, when it is all too certain that radical relief is impossible, hence the importance of continuing to insist upon early and radical treatment as a necessity if we are to preserve the health and life of our patients in a manner rendered possible by modern methods of treatment.

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### The Mental Hospital of the Future.

By H. H. DRYSDALE, M. D., Cleveland.

It is with a certain degree of trepidation that I come before you today to consider a subject which has claimed your very best attention for years, but I find courage in the thought that a discussion may result which will be the means of urging us on to greater activity in the work in which we are all so vitally interested.

In recent years the study of psychopathology, or medical psychology, has succeeded in analyzing the human mind and in separating, one by one, the elements of which it is composed. It has also given us a broader conception of the architectural and functional plan of the brain of modern man and has explained many of the laws by which this marvelous structure, upon which Nature from time immemorial has been at work, is developed and perfected. As a consequence the study of psychiatry has received a pronounced impetus and scientific workers throughout the world are bending every effort to solve many of the hitherto unsettled problems relating to this all important branch of medicine. Already much has been accomplished in a practical way and particularly does this apply to the treatment of mental disease in its incipency.

From a humble beginning, the human mind, through progressive assimilation of impressions from without, adds to its capacity by introducing new functions which coordinate them-

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*Read at the Conference of Superintendents of the Ohio State Hospitals, at Columbus, Ohio, December 28, 1910.*

selves with those preexisting, in order to furnish a more complex and finished product. Gradually, then, by way of association of the recent experiences with the older perceptions, the mind of man ascends to the highest abstractions to which it can attain.

If we can appreciate the fact that the mentality of mankind is dependent upon the integrity of an exquisitely delicate organization of fine nervous elements, in various patterns and plexuses, closely related and intimately associated, it becomes easier to comprehend the manner of its derangement when its mechanism is disturbed, injured, or abused.

Life, as we are aware, is maintained by organic integration and disintegration. The physical organism extracts from the outer world those substances which are necessary for its sustenance and growth. At the same time it eliminates all the waste products and restores to the earth the useless material introduced. This fact and law has its counterpart in mental life also. Of the millions of impressions arriving at the receiving centers of the brain and perceived and transmitted to the great central crucible of the psychic workshop, only some are utilized by, or incorporated in the mind. Those which are antagonistic to, or out of harmony with the integrity of the psychic functions are promptly discarded or assigned to the spacious storeroom of the unconsciousness. If those impressions which are hurtful are not eliminated they tend to instal themselves much to the detriment of normal mental health. A somewhat large class of psychic disorders have their origin in this manner.

It is, then, obvious that through life a continual contest is in progress between the mental stability of the individual and the strains and stresses, to which his environment exposes him.

One person with a strong and sound mentalization may withstand shocks of adversity, the invasion of toxic, infectious, and other dangers without insanity but the person that possesses a nervous organization enfeebled by inherited or acquired defect is exceedingly prone to intellectual disruption when such perils present themselves.

It was the noted physician-psychologist Maudsley, who said: "Minds like bodies were born constitutionally different, and as nobody is born perfect, everybody presumably has his weak organ; the spot of least resistance in him, which suffers first and most when overstrained or otherwise hurt. The misfortune is when that organ is the brain." This will explain how one individual



suffering from a severe infectious disease accompanied by a high fever will successfully combat it with his mentality unruffled. Another suffering from the same malady, but with a much milder fever, becomes wildly delirious and otherwise physically disturbed. So it is with alcohol: in some a small dose of an inebriating beverage may and frequently does precipitate a transitory mania, while in others a very large dose has apparently no ill effect. With this brief introduction permit me to proceed with the true subject of my thesis, "The Mental Hospital of the Future."

In no department of medicine have such rapid strides been made as in the care and treatment of disorders of the mind. Unfortunately for many years, insanity was surrounded by secrecy and mystery and even today a surprisingly large number of supposedly well informed persons entertain the view that an insane person is none other than a social castaway, doomed by heredity and fate to be secluded and hidden out of sight. An impression also prevails that an individual once insane is always insane and that few, if any, ever recover. Not very long ago I was interrogated by one of the members of the Board of Lady Visitors who desired to know whether the recovery record among the inmates of our State hospitals ever exceeded one percent.

Many of these superstitious notions, however, are falling by the wayside and the public gradually is beginning to realize that the insane are sick with a disease which in many of its forms is amenable to early treatment. For some time the medical world, prompted by this conception, have been actively engaged in a struggle against chronic diseases and especially with tuberculosis and insanity. As a result of these investigations we have discovered that whatever success the future holds in store for us will come from the application of efficient prophylactic measures. Our future then will be a campaign of preventive medicine. A few years ago tuberculosis was looked upon as a hopeless scourge and thousands died without a single hand being lifted in their behalf. Today it is safe to assert that the large majority of cases detected in the developmental stage are recoverable. As it was with tuberculosis so it is with insanity. We were taught all these years to look upon this infirmity as a disgrace to be hidden in the "family closet," and as a consequence many curable cases have been detained in unfavorable environments until the opportunity for amelioration had passed.

Heretofore the tendency has been to separate physical and mental affections into two separate compartments, as if there was no connection between them. On the contrary there has always existed an harmonious reciprocal relation between the body and mind and both are altered by the modifications that occur in each. Furthermore it has been fully established that many of the causes that seriously disturb the physical economy are the same as those which disintegrate and destroy mental health. Mental patients therefore are sick patients. Such persons are ill because their nervous systems are permanently or temporarily affected. Many of them present manifestations of exhaustion and toxemia. They also suffer from other disorders—in some instances prior to, and leading to insanity, and very often as a result of nervous ill health. So, inasmuch as the insane are physically sick of a malady which in the early stage of many of its forms is curable, it is only just that such persons be as humanely and considerately cared for as other sick persons, and on a similar basis.

These are the principles which underlie the modern movement for hospitalizing public institutions for the insane and several States, notably New York, Massachusetts, Illinois and Michigan have now in operation fully equipped departments to meet the new demands.

It is contended by those best qualified to speak on the subject that if we are to meet with any success in curbing the gradual increase of hopeless insanity energetic measures must be applied at a time when there is great hope for recovery. That a considerable number of the acute insane are exceedingly susceptible to wise and judicious treatment has been demonstrated time and time again. In the Bethlem Royal Hospital, London, where only recent cases are admitted, Stoddart reports recoveries in 48%. This indeed compares favorably with the recovery record of certain physical diseases. It is also a well known fact that many persons wandering from the path of normal mental control have an exceptionally clear insight into the nature of their affliction and are more than willing to cooperate in the restoration of their health. But they object, and with good reason, to having to submit to arrest by the police before they can partake of the treatment necessary for their recovery. Unfortunately our State institutions are concerned only with those cases which are committed by the courts. In many instances these



patients have been mental invalids for years and have reached a state of deterioration for which we have no remedy. As a consequence fully 70% of the patient population of these hospitals are what are termed "chronics." Surely we cannot expect individuals approaching mental impairment to voluntarily accept treatment in what they regard as a hope-deserted environment. Furthermore, a quasi-political atmosphere pervades our State hospitals and this too detracts from the modern curative spirit.

At this point, however, I cannot refrain from emphasizing the fact that the hospitals of Ohio are as well equipped and efficiently conducted as the best institutions of a like character in the world and in some of them to my own personal knowledge, excellent work along advanced lines is being performed, although handicapped by many obstacles. The recovery record of your institutions, gentlemen, is as high if not higher than in similar hospitals in Italy, Germany, France, Switzerland, England or Scotland. But the proposition that now confronts us does not relate so much to the care of that large class of institutionalized cases, although many of these regain their reason, even after a year's residence in the hospital, but in the prevention of those types of insanity as are already known to be preventable. With these facts before us there seems but one course to pursue. This will be found in the organization of what is known as a psychopathic department in every populous center or institutional district. For obvious reasons it should be separate from the main institution so that the patients admitted will in no manner come in contact with the objectionable types of advanced cases.

It is needless to say that its location should be easy of access and the situation such as to avoid all disturbing elements. The surroundings must be inviting and the building supplied with an abundance of light. Comfortable rest-rooms and sun-parlors would be of inestimable service. Provision should be made for the effectual segregation of noisy and disturbed patients when necessary. This I consider extremely important. The internal construction should be made to resemble as much as possible our general hospitals but separate rooms, except a few for special purposes are unnecessary. Women nurses it seems have a more quieting influence over the acute insane than men and their presence is a guarantee of gentle and refined methods. By their companionship a homelike feeling is obtained which is most desirable. Care must be exercised, however, in choosing only

those temperamentally suited for this trying work and better still they should be graduates of recognized training schools. Their number in proportion to patients will of necessity be relatively greater than in the main building.

In the selection of a medical staff preference should be given to those who are not only experienced with the insane but who have obtained adequate knowledge of bodily diseases and the causes thereof. These officers would be subordinate to the medical superintendent, who would direct and have charge of the scientific work. A small laboratory is indispensable for the examination of the blood, sputum, bodily secretions and pathological specimens. Legislation could be enacted permitting the superintendent to receive without judicial sanction a limited number of suitable nervous and mental patients for first care, observation and treatment. Each applicant would be obliged to furnish a proper certificate from his physician setting forth all the facts in the case. The right to accept or reject the patient would rest solely with the superintendent.

The hospital being small with a limited admission of selected patients would afford excellent opportunity for the through study of and particular attention to individual cases as cannot well be given in our massive institutions, with their inadequate medical staffs. Not only would exact and close study be made in every instance but the attendance of physicians and students devoting their entire time to the clinical investigation and exposition of mental disorders as well as the physical complications which arise, would sharpen medical acumen, suggest new lines of inquiry, stimulate healthy rivalry and prevent routine of thought, action and treatment. The mentally sick could hardly fail to benefit by the surrounding atmosphere of sanity.

In Europe, and while I speak I have in mind the special hospitals of Paris, the patient presents his medical certificate on certain days and is received by the director of the outpatient department. If after a complete examination in the dispensary he is found to be in need of hospital care, it matters little whether he is sane or insane, he is promptly assigned to the proper ward without any other formality. I was very much interested in the psychiatric clinics in connection with several of the London hospitals. At Charing Cross Hospital, Prof. Chas. Mercier every week conducts a large clinic, where patients who are in a state of mental unrest come for counsel and treatment.



Whenever he finds it necessary or desirable, Mercier calls upon one of the visiting nurses, attached to the hospital, to investigate the case and report to him the nature of the patient's environment. In this way he is able to cure many suffering from mild psychoses and to prevent others from developing insanity. This is in keeping with the modern trend of preventive medicine.

In visiting the famous Saltpetriere Hospital, in Paris, with its patient population of over 3500 women, we passed through wards containing not only those mentally ill but those suffering from the various forms of nervous disease. The general atmosphere was that of a busy clinical hospital and the large medical and nursing staff was diligently engaged in caring for the many sick under their charge. In other European institutions the same plan is in operation and it is only a matter of time when our American institutions will be conducted in a similar manner.

One of the most serious defects in the methods employed in dealing with the mentally disturbed in the community is the extent to which it is considered necessary to appeal to the police. This largely is due to traditional notions and customs, and of expediency, other means not having been provided, or clearly felt to be needed. For my part I cannot see any good reason why the State of Ohio should not furnish nurses, qualified as special agents if necessary, to bring insane persons to the hospital, nor why many more patients cannot be examined in their homes and sent directly to the hospital thus avoiding possible contact with the strong arm of the law. I believe, however, that the criminal authorities do the best for these patients in what seems to them a proper way. But their methods, knowledge and facilities are still inadequate. Even when they treat the cases with consideration and kindness the system is at best faulty and inevitable suffering and aggravation of mental disorders must result. It is also my opinion that the confinement of women in jails merely because of insanity, is totally unnecessary under any circumstances and should be prohibited by law.

The services of the police officer will of course be always required under certain conditions but I am sure that this interference can be reduced to a minimum. If our hospitals could be made more accessible and the conditions of admission and discharge more reasonable for voluntary cases and those of emergency, many of these difficulties could be overcome. It will indeed be a happy day for the mentally unstable when the

public at large feel the need of this as in general medical and surgical cases. Is it not pitiable to hear a patient exclaim, "The police came to my home and took me away. Why was I arrested? I have done no wrong. I am sick."

A very large number, probably 15% of those found to be legally insane, recover in a remarkably short time. This especially applies to certain types of alcoholic psychoses, transitory confusion, excitement and depression. Under existing laws these patients when apprehended by the police are immediately lodged in the county jail for safe keeping. It has happened many times that patients finding themselves locked up behind prison bars suddenly lose their self-control and become violent. The jail officials having no facilities for such emergencies quickly adjust the handcuffs or some other means of mechanical restraint. Certainly such inhuman conduct leaves a serious impression upon the mentality of these unfortunates and is enough to prejudice their chance of recovery. It is an additional burden for them to carry and the very thought of their former harassing experience is sufficient, in not a few cases, to excite recurrence. If these mental weaklings could have received first care in an environment where the medical spirit prevailed, they would have recovered more promptly and taken on new courage, resting assured that should they again falter under the strain and stress of modern life, appeal for help would not mean imprisonment in jail.

Then we have that class of mild borderline cases who have a full realization of their condition but are driven hither and thither by tormenting doubts and fears. In some of these the impulse to suicide is strong. Not infrequently they seek medical help and protection but in consequence of a deeprooted prejudice that possessess them, they steadfastly refuse to undergo treatment in the surroundings of the chronic insane. In my own experience several of these morbidly inclined individuals have destroyed themselves. So long as we remain unprepared to extend relief in times of acute mental distress, calamities such as these will continue to shock us.

Perhaps the strongest reason which justifies the erection of these modern institutions is the facilities offered for the teaching of psychiatry. In the past, few medical schools have been competent to instruct their students in matters pertaining to this important branch of medicine and as a result there are



today hundreds of excellent physicians who have graduated without having had the opportunity of witnessing a single clinic for mental diseases. It is not strange then that the average practitioner's knowledge of disorders of the mind is as crude as the layman's. These shortcomings can in future be remedied by permitting students to observe and study abnormal mental manifestations so that they may be able to interpret the early indications of impending disaster and perhaps forestall its progress into confirmed insanity.

Another important feature of our work which has not received in Ohio the attention it deserves relates to the aftercare of insane patients. Those who have friends do not of course require further official supervision but many less fortunate are obliged to convalesce in degrading and hazardous environments. In New York a committee of aftercare follow the patient to his home, study his habits and social conditions, arrange for his employment and endeavor to assist him in every way in order to diminish the tendency to recurrence. Great good has resulted from this source and Ohio might also profit from the inauguration of a similar system. A special organization with visiting nurses, agents, etc., could work in conjunction with the hospital in behalf of patients who have had to reestablish themselves in faulty surroundings. In this connection it would be advisable to develop an outpatient department where these patients could seek advice and instruction with the same freedom as obtains in the dispensary service of our general hospitals. The aftercare of the insane, in my judgment, is just as important as the aftercare in surgical operations and during convalescence in either condition relapses and complications are very apt to occur.

I might go farther and call to your attention additional matters of improvement as advocated in this world-wide movement for the betterment of the insane, but this I fear would prolong my paper beyond reasonable limits. I should like, however, at this point to quote George M. Robertson, Physician-Superintendent of the Royal Edinburgh Asylum (Morningside) who recently said. "My own policy for many years has been openly to put under suspicion every practice that is in operation which is peculiar to asylums. If I find I can do without it I abolish it, and if I find it cannot be done without but that it can be replaced by another method of a hospital character, then I introduce that. Subjected to this stern criticism it is surprising

how many anachronisms and unmedical traditions have been exposed and with a policy of hospitalization so definite and active, progress towards the goal we strive for is a comparatively simple matter."

It is apparent, then, that the modern curative spirit is best expressed in the psychopathic hospital or observation ward, for the care and treatment of the acute insane. It seeks the most enlightened treatment of brain disease, broadest knowledge of mind disorders by scientific research into its nature, causes and results, amplest opportunity for clinical study and instruction in psychiatry and mental hygiene, public provision for voluntary and emergency cases without the adjudication of the courts, outpatient service for the poor who need instruction and counsel, aftercare of dismissed patient and for the early discovery of dangerous tendencies of the mentally deranged in time to safeguard against violence. These will be the chief benefits to be derived from an acute hospital well staffed, well nursed and well directed.

Let it not be supposed that an institution of this sort will be a panacea for all of our deficiencies for such will not be the case by any means. No matter how well equipped they may be, or how skillfully conducted, they can never succeed in preventing a certain number of patients from becoming chronic invalids. Nor in cases in which the disease is fully established or well developed can we anticipate a higher rate of recovery than in any other institution. But they will prove their usefulness by furnishing modern facilities for the proper treatment of people not strictly insane but as those needing hospital care and who are returned to their homes without having been subjected to a court inquiry, an element of great satisfaction to the patient and his family. In this respect they will be a valuable acquisition to the curative equipment of the State hospital.

During the past few years the methods for the clinical investigation of diseases have increased both in number and in complexity. Some of these require not only a high degree of technical skill but a great deal of time and it is utterly impossible for the physicians who have their daily rounds to make and whose services are in demand every hour of the day, to undertake them. These investigations of a chemical, microscopical, bacteriological, pathological and psychological character must be conducted by a special staff appointed for this purpose, so that they will not be



interrupted in their delicate work. It is therefore advisable that the Ohio Legislature establish a modern laboratory centrally located and in affiliation with a university medical school or hospital where these studies may be systematically pursued. Columbus would make an ideal situation for the development of a pathological institute in Ohio. The material required for scientific research could easily be transferred from the various State hospitals and the medical officers of each institution would be required to serve a definite period in laboratory work. The advantages to be derived from such an establishment would be far reaching as many of the still unsettled problems in psychiatry can be solved in no other way. Charles H. Clark has recently read a paper on this subject and I heartily concur with his views.

The proposed movement for extending the application of the medical view of insanity to the official methods of dealing with insane persons is in a measure an extension of State care. It provides for the building up on a medical basis, under State auspices, a system of dealing with the whole problem of mental disorders in a more efficient manner than has ever been undertaken before. The mental hospital of the future must therefore be prepared to carry out these ideals. From now on the plan of erecting mammoth monumental institutions throughout the country will be superseded by the demands of modern progress which calls for the establishment of public hospitals on the cottage plan so that patients may be treated and studied individually and not as a class. Furthermore the success of your hospitals will no longer be measured by the executive and architectural ability of the superintendent and his low per capita cost of maintenance but rather in his percentage of recoveries. In other words, the mental hospital of which I speak, will be a well governed general hospital with efficient medical staff, skilled nurses, diet kitchens, surgery, laboratory, hydrotherapeutic and electrotherapeutic appliances, hygienic surroundings and congenial environment—a true hospital in every sense of the word. Combat these facts as much as we choose, the thought will return that insanity is a disease and the hospital idea must shape our treatment of its various phases and our construction of the buildings in which we attempt its cure.

Within ten years the appointment of incoming superintendents will be under the control of a civil service system and it is quite

probable that a Commission in Lunacy will supervise the entire service. The wide call for these improvements is not merely a sentimental cry to avoid the stigma of insanity which so many keenly dread but is a cry to secure early care for individuals who need it badly. It has now become a universal appeal and the general trend of thought is focussed in this direction. Nothing possible can stand in the way of its development.

Recently the City of New York has undertaken to organize a commission composed of alienists, neurologists, social workers, philanthropists and other persons whose position gives them influence and opportunity for effectual social service, for the prevention of insanity. An appropriation has been asked to enable the committee to carry on educational work similar to that performed by the Board of Health in the prevention of tuberculosis. The campaign will embrace the dissemination of knowledge regarding certain phases of insanity, will explain how at least 40% of the male admissions to State hospitals are directly due to alcohol, drugs, syphilis and acute infectious diseases and how many of these can be avoided. Popular lectures will be given, leaflets will be distributed, clinics established in connection with many public and private hospitals and an attempt will be made to bring together a strong and united body of willing workers whose duty will be to teach the general public to appreciate the close relation existing between insanity and certain factors susceptible to control by the individual and by community action. This indeed is a worthy object; fit to engage the earnest interest and the serious consideration of the best and strongest in any locality. Any arrangement of this kind will, I believe, do more to advance the treatment of mental diseases than any other agency, for after all the real crux of this momentous problem is education. In Cleveland, Judge Alexander Hadden of the Probate Court, has of his own initiative been spreading these tidings in popular lectures and if others would follow in his footsteps much good would be accomplished.

Finally, the 13,000 mentally enfeebled patients in Ohio State hospitals are the end products of processes which have their beginning in a complexity of personal and social elements which lie far back of where our work now reaches. A campaign for tracing out and controlling these factors is demanded and the privilege and duty of shaping it should belong to us. Shall we accept this new responsibility or shall we continue to devote ourselves to institutional problems.



## The Relation of Pharmacology to Clinical Medicine.

By WM. deB. MACNIDER, M. D., Professor of Pharmacology in the  
University of North Carolina

In presenting this subject for your consideration I shall approach it primarily from the standpoint of a teacher, and secondarily from that of a medical man who is deeply interested in the development of scientific clinical medicine in general, and especially interested in its development in the South.

Pharmacology, taken in its modern interpretation, should be of distinct service to the undergraduate student for its value in scientific training and for its real purpose in demonstrating the mode of action of those drugs which possess such a quality, and equally important for its value in demonstrating the fact that many drugs have no action.

In addition to these self-evident reasons concerning the value of such a course, it may have a broader bearing upon the development of the medical student and upon his future life as a clinician than is usually attributed to it.

It has been my observation at the school with which I am connected and at several other institutions that when a student completes his first two years of medical work which have to deal with the fundamental and more exact branches of the medical curriculum, there at once develops, and with some degree of wilfulness on his part, a spirit of forgetfulness for the things of the past and a glowing anticipation for the so-called practical and, in the mind of the student, the really useful medical subjects. This attitude means imperfect development so far as the student is concerned and a dwarfed conception of real clinical medicine.

This state of more or less divorce which exists between the first two years of the medical curriculum and the last two is painfully apparent when we consider the few medical men, comparatively speaking, who approach the cure of disease from the standpoint of structural change, e. g. pathology, and the bare handful in this country, who, with an understanding of physiology, attempt a physiological interpretation of a morbidly reacting organism.

There should exist in the latter half of the second year and

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early in the third year, courses whose function it is to bridge this gap and weld together in a fashion inseparable the fundamental branches of the medical curriculum with the more apparently practical branches.

I am aware of the fact that there are perhaps one or more institutions in this country where the type of student is such that this linking is not necessary, but, on the other hand, I believe at those institutions whose prime function it is to turn out general medical men that this union which I have referred to is a real necessity.

At the outset I would have it clearly understood that I am not advocating any system of medical training, or any course which tends to impress the student of its importance by pointing out that the facts learned have a practical value and therefore must be mastered. The highest type of student learns a subject because it is a bit of knowledge to master, and if it contains matter of practical value he is thankful; while if it doesn't he should be glad of his knowledge for learning's own sake. This is the ideal student, whom happily we run across once in a while. The average student has not such a thirst for knowledge and this type, in order to make the most of him, we must lead, arouse his enthusiasm, and in some measure show.

There are two subjects which could, if properly handled, best fulfil this requirement. They are courses in pathological physiology and in experimental pharmacology. The proper interpretation and appreciation of symptoms which would be developed in a student who had to think of physiology as a reaction of an organism under morbid influences as contrasted with its reaction under normal influences would be of lasting value to him.

The value of pharmacology for the purpose mentioned above, depends entirely upon the type of course which is given and upon the amount of experimental work which the student is allowed to attempt.

The type of course in pharmacology which I have referred to has several characteristics.

In the first place, it should not be chiefly a didactic course. Lectures and quizzes are certainly necessary, but the more the lectures can be substituted by observations on the part of the student and the more the quizzes can be eliminated by informal talks and conferences with the student, the better it will be for



the course and for the real information gained by the student.

In the second place, a detailed study of a few drugs should be insisted upon and their mode of action and limitations thoroughly mastered. The criterion which determines the efficiency of a drug need not necessarily be its action on the lower animals, though this is certainly the safest guide to rely upon. Some drugs undoubtedly are of purely empirical value and have an action which has been established by the careful observations of clinical men. If this be the case, then such drugs should be learned in a dogmatic way until their value can be determined by showing their mode of action or their inactivity in the lower animals.

On the other hand, it is wrong to use a medical student's valuable time by burdening his intellect with a discussion of useless drugs and trying to "bluff" a mind, that should be hunting the truth, by discoursing on the value of a substance which has been proved experimentally and clinically to be worthless.

Under the heading of *materia medica* there are at the present time many such substances which should not be included in the type of course described. In a measure they are included and have to be, for the reason that examining boards persist in questioning applicants for license concerning such inert substances. Here the boards of medical examiners could be of distinct service to teachers of pharmacology and indirectly of service to clinical medicine.

Having selected the drugs, a knowledge of which is the ultimate aim of the course, it next has to be decided in what manner this information is to be imparted. Two plans are available. The subject may be presented in the usual way, that such a group of drugs or drug, such, for instance, as *digitalis* is a "heart stimulant and tonic" and by such a presentation simply suffocate any element of inquisitiveness which may be smouldering in the mind of the student; or another plan of presentation may be used which tends to make him think and reason. The statement may be made that the drug in question influences the heart in two ways: that it has an action on the endings of the vagus nerve in the heart muscle which tends to slow the heart and prolong its diastole; that it has another action on the muscle of the heart, which in part consists in rendering the muscle more irritable and more receptive to outside stimuli. As a result of this increased irritability, a heart under *digitalis* action

would be faster and more imperfect in its functional capacity were it not for the fact that in the therapeutic stage of digitalis action the vagus stimulation predominates, slowing the heart and allowing its chambers to fill more perfectly with blood, while the drug which he is administering to slow the heart is the direct cause of its increased rate and imperfect action.

One of the chief aims of such a course is to stimulate inquisitiveness on the part of the student, to make him wonder how the action comes about, with the belief that such a mental attitude will not stop with his student days but will become such a part of his intellectual self that he will carry it directly to the bedside and to the operating room.

After having stimulated in the student this wholesome attitude of doubt and a determination to know the reason for observed facts, the next characteristic of the course is to give him an opportunity to make his own observations and to draw his own deductions.

This is accomplished by allowing the student to work out the action of the more important drugs on the lower animals. This should be the strongest part of the course and should take a part of the time allotted to didactic teaching, and should not be substituted by class demonstrations.

Here the student administers to an etherized animal digitalis, for instance, and obtains a record of a slow heart. What is the cause of the slowing? Is it an inhibitory action on the part of the vagus, is it diminished activity on the part of the sympathetic, or is it a less irritable heart muscle? He likely knows from his didactic study that atropin depresses and finally paralyzes the endings of many nerves. He administers this drug or cuts the vagi and the rate of the heart increases. He has observed the action in this instance of a given substance, e. g. digitalis; he has wondered at its action and formulated certain possible conditions which could have brought about the result; next, he has determined which one of these possibilities really exists; finally, he has found the truth.

The foregoing is a concrete example of the type of training which experimental pharmacology offers. A student who has such training, provided there is enough of it, is bound to develop a thinking, reasoning mind which will carry the more exact training of the elementary branches of the medical curriculum unconsciously into the clinical branches and persistently ask the reason why.



## Ointments and Their Therapeutic Use.

By WILLIAM THOMAS CORLETT, M. D., L. R. C. P., Lond.

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The use of ointments comes to us from remote antiquity. The oldest writings with which we are familiar speak of it, thus Moses directs "an ointment compound after the art of the apothecary." (Exod. XXX, 25). In the land of the Pharaohs excavated tombs still show that ointments were of common use and considered a necessary adjunct to daily life, even at an earlier date.

As occurs today, the same problems of decomposition and rancidity confronted the pharmacist in the time of Solomon who wrote: "Dead flies cause the ointment of the apothecary to send forth a stinking savour" (Eccle. X, 1).

Business depression in the sale of drugs is also touched upon at a later date, when St. John, lamenting the fall of Babylon, remarks: "No man buyeth any more their odours and ointments" (Rev. XVIII, 11-13).

In the foregoing its cosmetic use is more especially dwelt upon, while in religious ceremonies it was used as it is now by the Roman Church.

As diseases of the skin were the first to be recognized and treated, we naturally infer that the use of external applications was in vogue at a very early time. We know that medicinal ointments were used in China and India many centuries before the Christian era and with the rise and development of the Arabian school of medicine, external medication by means of ointments came into more general demand. Emerging from the dark ages at the time of the Renaissance, vague theories prevailed in the healing art which continued more or less dominant until the last century. Thus the color of the ointment was considered of the highest importance. The first to ascribe therapeutic effect to color was Averoes<sup>1</sup> (1198 A. D.) who said: "White is refrigerant, and red is hot, from the fiery particles with which it manifestly abounds." This theory to a certain extent has survived and with a more intimate knowledge of the effect of the different rays of the solar spectrum on the human organism it still may be dem-

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onstrated that this empirical assumption is founded on a demonstrable fact.

During the sixteenth and eighteenth centuries polypharmacy was at its height and the composition of ointments partook of the general custom. Even in comparatively modern times the ointments which bear the names of Vigo and Wilkinson may be mentioned as examples. The present age of medicine is characterized by an effort to attain scientific accuracy and while many things remain obscure, yet the number of demonstrable facts is gradually increasing.

For the modern use of ointments to their full extent we are indebted to Ferdinand Hebra (d. 1880), who first successfully combatted humoral pathology as applied to diseases of the skin. This investigator and great clinical teacher demonstrated that many diseases of the skin, supposed to be due to some peccant humor in the blood or vague dyscrasia of the system, were caused by local conditions and remedied by local measures. These he employed with consummate skill.

In composition, ointments consist of a base or vehicle and certain medicinal substances incorporated therein. Both the base and ingredients vary according to the therapeutic object to be attained. From the clinician's point of view ointments may be considered under the following general varieties: First, protective, emollient or soothing, sometimes known as simple ointments; second, astringent; third, stimulating, formerly called alterative; fourth, antiseptic; fifth, absorbent, for introducing medicine deeply into the follicles of the skin or through the absorbents into the general system.

The physician usually directs the medicinal ingredients of an ointment, while to the pharmacist is more frequently left the selection of a suitable base as well as the preparation of the ointment mass. The base however, should vary according to the use for which the ointment is intended almost as much as do other parts of the ointment. Sufficient attention, I believe, is not given to this fundamental phase of the subject.

The materials usually employed in making the base are the various fatty or unctuous substances such as lard, suet, wool-fat, spermaceti, petrolatum, together with various oils as an occasional accessory. The ingredients should be dissolved or rendered impalpable and evenly incorporated in the vehicle. One can



better comprehend the proper preparation of ointments by having a general conception of their therapeutic use.

To enter more fully into the subject, the first variety, soothing ointments are intended as a protective covering to guard against extraneous irritants such as the atmosphere, sun's rays, particles of dust, and cold. The base of such an ointment should not be readily absorbed, but remain as a pliable, more or less impermeable covering to the surface of the skin. The substances to be used in forming this base, therefore, should be petrolatum, or lard with paraffin, spermaceti or wax in various combinations to make a suitable vehicle.

Again, an important feature to be borne in mind, especially in this class of ointments, is to select a base that will not readily decompose, thus forming an irritating substance which may more than counteract the soothing effect which the prescriber hopes to attain. Thus petrolatum to some skins is said to be a direct irritant. It may be more correctly expressed that some outputs of petrolatum act as an irritant to sensitive skins. This may be due to inefficient refining and while it can not be denied that some skins seem to have a special idiosyncrasy against the petroleum product, it is due, I believe, to a hypersensitiveness to the aforesaid irritant which ordinarily is not observed and with proper refining need never occur. When assured of the absence of irritating substances petrolatum is the ideal base in this class, for it possesses two essential features in the highest degree, non-absorption and asepsis.

Lard fulfills the requirements only when sterilized and treated with benzoin or beta-naphtol to inhibit putrefaction, together with the addition of some non-absorbable substance of firm consistence, such as paraffin, wax or spermaceti. The amount of such hardening substance naturally should be regulated by the climate and the amount of drug, if any, incorporated, the object being to form a pliable mass that will remain unchanged for at least several hours. When prepared this class of ointments approximates pastes in consistence.

Lanolin may also be used in making the base, but unless well incorporated with wax its absorption is too rapid and therefore its use as a protection is evanescent. Jellies might likewise be used in some instances but they do not allow the medicament to come in intimate contact with the tissues to be acted on. Their therapeutic action approximates more closely that

of gutta percha and varnishes. The simple cerate of the U. S. Pharmacopoeia fulfills, in the main, the requirements of this class.

Simple ointments frequently have incorporated in the mass such bland substances as starch and when a more marked sedative effect is desired, aconite, opium, belladonna or cocain.

In making astringent ointments, the selection of the base naturally depends on whether the astringent action desired is superficial as in abrasions, or more deeply seated as in more active exudative processes in which the whole thickness of the derma is involved. In the former a base should be selected, as in the simple ointment, with feeble penetration; while in the latter a substance capable of absorption or at least of permeating deeply into the follicles of the skin, should be selected. The substances most readily absorbed are lard, goose grease and lanolin, the two former readily decompose while the latter is free from this objection. The least penetrating substances used in the formation of ointment vehicles are petrolatum, spermaceti and wax. Between these extremes come suet and the various lighter oils. Lard, olive oil, goose fat and spermaceti can be used only when freshly prepared or when asepsis can be retained. Petrolatum and lanolin or wool-fat, are, on account of their freedom from putrefactive changes, the most valuable ingredients for an ointment base; the one for superficial action, the other for deep penetration.

A variety of drugs are at command, such as bismuth, boric acid, zinc, alum and lead, which may be incorporated to form an astringent ointment. Of the vegetable astringents most commonly used may be mentioned tannic and gallic acids and their derivatives.

Stimulating ointments call for deep penetration, their base, therefore, should be made largely of lanolin or lard. Most of the medicinal substances used in this group are antiseptic, such as tar, ammoniated mercury, resorcin, the oil of birch and the oil of cade, chrysarobin, iodine and soap-bark so that rancidity need not be feared. When it is desired to remove thick crusts, thickened epidermis or to clear the way to some pathological changes beneath the surface, salicylic acid is often added for this purpose.

The field of operation for antiseptic ointments is epidermic rather than diadermic, their action is limited mainly to



the epidermis and rarely to the papillary layer of the derma. Substances incorporated in such ointments are not intended to be absorbed into the system and some of them are toxic when so absorbed, nor is there need of selecting a base with reference to its liability to become rancid, because its ingredients should maintain it sterile. As in other ointment bases the climate or temperature of the air will determine the substances of which the base is composed. Thus petrolatum, or lard with paraffin or wax would best meet the indications as outlined.

Phenol is the drug most commonly used and in one to three percent strength is efficient. Other preparations of phenol even more potent are cresol one-half to one percent and creolin one percent. Boric acid is equally popular among physicians, but its antiseptic action is feeble. Its inefficiency as a germ destroyer is compensated for by a mild astringent action, which boric acid possesses, making it, therefore, a valuable application when a feeble antiseptic and astringent action is desired. The choice between petrolatum and lard in such an ointment would depend on the depth to which the action was desired. Beta-naphtol possesses antiseptic as well as stimulating properties and is of value in some conditions as in the mycoses of the skin.

Of marked efficiency though but little used is iodine. In the experiments of Post and Nicoll<sup>2</sup> a one percent solution of iodine and potassium iodide caused the death of all microorganisms experimented on, such as the streptococcus, gonococcus, pneumococcus, and the typhoid bacillus, in less than one minute. Its stimulating effect also renders its antiseptic action more effective when applied to necrotic and decaying structures. Acid salicylic, cupric sulphate and hydrargyrum are also used in this connection.

The penetrative, absorptive, also called diadermatic ointments are employed either to act on the deep follicles of the derma, as in trichophytosis, to act on pathological conditions beneath the derma, or through the venous or lymphatic radicles to affect the system at large. The medicinal constituents vary according to the disease for which they are employed. Thus they may be either stimulating, parasitic or constitutional. The base, therefore should be selected which facilitates absorption, such as goose grease, lanolin and lard. The medicament should be in a state most readily passed through animal membrane. All palpable particles naturally should be excluded from such a

preparation and the most finely divided, impalpable substances should be incorporated evenly in the vehicle. The oleates of copper and mercury may be mentioned among the most efficient drugs when a local effect alone is desired. In mycotic diseases of the skin Jackson<sup>3</sup> believes goose grease is the best of all vehicles.

Of the various mercurial ointments, the ammoniated is used for its local effect and is employed in the strength of five or ten percent in a moderately impermeable base, excepting in some of the mycoses when a permeable base is needed. Mercurial ointment should contain as much of the salt as is consistent with deep penetration, which has been estimated at 50%. The object in using this ointment is to introduce as much of the salt as possible into the deeper parts with the least amount of cutaneous irritation, from rubbing or otherwise. With some patients this form of medication is impracticable because of this reaction.

In conclusion something may be said in regard to the various preparations, most of which are "made in Germany", a few in France, to replace the time honored ointments herein considered. The present writer has on several occasions been sufficiently captivated by the apparently disinterested enthusiasm of some clinical teachers to procure an ample supply of pastes, pencils, soap salves and mulls, but the results on continued use have, without exception, been disappointing.

It may be said, therefore, that the best results cannot be obtained by stock formulae even when their exact composition is known, much less benefit can be expected from the numerous preparations of unknown or fictitious compounds offered to the physician with blaring announcements of their wonderful curative properties in the most diverse conditions. Again, the base must vary with the disease for which it is to be used, and the medicinal ingredients must vary even to a greater degree.

This need not hamper the work of the revisers of the forthcoming Pharmacopoeia; on the contrary, it should facilitate the work of properly grouping the various ointments according to their therapeutic use.

#### REFERENCES.

1. Sydneham Thos.: Greenhill's Translation, London, 1844.
  2. Post (W. E.) and Nicoll (H. K.): The Comparative Efficiency of Some Common Germicides; *Jour. Am. Med. Assn.*, Nov. 5, 1910, p. 1635.
  3. Jackson (George Thos.): *Trans. Am. Derm. Assn.*, 1901.
- 1935 Euclid Ave.



## Ointments.

By LEWIS C. HOPP, Ph. G., Cleveland.

Since the last meeting of this Section the Pharmacopoeial convention was held in Washington, and our city was honored by having three representatives elected to serve on the Committee of Revision, which now consists of 50 members instead of 25 as formerly. This committee has been divided into sub-committees, so as to expedite the work of revision and place the finished Pharmacopoeia in the hands of the physician and the pharmacist within two years' time from the date of holding the convention.

Tonight we will consider that part of the work of sub-committee No. 12, which relates to cerates and ointments, and as much help as possible is desired from physicians regarding the use of petrolatum, lanolin, lard, waxes, etc., in the preparation of the various ointments.

All the former editions of our Pharmacopoeia have had a chapter on cerates and another on ointments. It has been suggested by Mr. Alpers, a member of the sub-committee, that these two chapters be consolidated and that there be but one chapter—on ointments. Cerates, more especially simple cerate of the previous editions of the Pharmacopoeia, are used as a dressing rather than an inunction. In the summer months a cerate is satisfactory, but in the winter it becomes too hard for practical use, and the unguentum, or simple ointment has to take its place. A cerate contains 30 parts wax in 100; an ointment contains 20 parts in 100. As the ointment has a much wider use than the cerate, it might be advisable to drop the harder cerate and give directions for the making of a harder base in the form of the following footnote under ointments: "Replace 10 parts of the lard with 10 parts of wax." I have frequently had ointments brought back because they were too hard, on account of the base prescribed being that of a cerate instead of an ointment.

If it is thought best to have two bases in the Pharmacopoeia, they might be designated hard and soft. So far as the other cerates are concerned they can be named ointments, as there are no ointments that are of the same basic composition as the

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cerates, and it would make little difference whether there were named cerates or ointments.

In case it is decided to have only ointments in the Pharmacopoeia, I would suggest that a number of bases be adopted, as follows: petrolatum and lanolin; lard or benzoinated lard; lanolin; lard and wax; oil of almonds, spermaceti and wax.

Four of the six cerates now official are made with a base composed of varying proportions of petrolatum and lanolin, and each one requires special manipulation. I would suggest a base composed of equal parts of petrolatum and lanolin. This makes an ideal and simple base, provided, however, that petrolatum is considered advisable as a base for the ointment.

Ointments of camphor, lead, boric acid, and carbolic acid are made with a petrolatum and lanolin base containing 33% yellow wax. Preference is given to yellow wax as it has a distinct antiseptic property and a pleasant odor, which cannot be said of white wax. A base composed of oil of almonds, spermaceti, and white wax should be used for ammoniated mercury ointment, 10%: this ointment may be considered a cosmetic preparation and in such, the odor of lanolin is very objectionable.

The fact that two different strengths of mercurial ointment are used, ungt. hydrarg. 50% and ungt. hydrarg. dil. 33%, has caused considerable confusion; yet it should not, for whenever ungt. hydrarg. is prescribed the 50% ointment should be put up. The 33%, or diluted ungt. hydrarg. is not fitted for inunction as it contains one-third petrolatum, and therefore should not have had a place in the Pharmacopoeia. We are now confronted, however, with the formula, or strength, adopted at the Brussels' International Conference, and which has been adopted by quite a number of foreign countries, the idea being to have a uniform strength. At this conference a 30% strength was adopted, and as the National Pure Food and Drugs Act recognizes the formulas of foreign countries, our Pharmacopoeia may be compelled to give this recognition. If such be done, we must either have two strengths or drop the 50% ointment and adopt the 30%. To avoid confusion, we might retain the 50% ointment and add this footnote: "To make the ointment conform with foreign Pharmacopoeias reduce the strength with lard to a 30% ointment." This, I think, would be better than having two strengths of the same ointment.

The ointments of oxid of mercury, yellow and red, at



present are 10% strength. Rarely are they used so strong, and it probably would be better to reduce them to 1%. These ointments are used largely in eye work, and invariably petrolatum is used as the base.

Bases for the following ointments may be left as they are, as they seem to be satisfactory: unguenta aquae rosae, belladonnae, chrysarobini, diachylon, gallae, hydrargyri nitratis, iodi, iodoformi, picis, potassii iodidi, stramonii, sulphuris, veratrinae, zinci oxidi.

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### Report of Eight Cases of Fatal Meningeal and Cerebral Complications of Suppurative Ethmoiditis.

By J. A. STUCKY, M. D., Lexington, Ky.

Several years ago, while spending some weeks in London, I became an ardent admirer of the work of Chas. A. Balance and in the introduction of my report of cases and comments, desire to quote freely from his work (Some Points in the Surgery of the Cerebral Membranes, 1908). The importance of dealing effectually with temporal bone suppuration is now well known. Practically the last word as to the treatment of suppuration here has been said, as is the case in the abdominal cavity when the appendix is involved. But the radical surgical interference in the treatment of ethmoidal and frontal suppuration is not yet carried out by the large majority of rhinologists. Even acute cases are sometimes left till the patient has developed some form of meningitis, while in the chronic cases the disease is often not recognized.

Chronic suppuration in the accessory cavities of the nose is exactly comparable to temporal bone suppuration; and like it should be treated strictly in accordance with the ordinary surgical principles applicable to the treatment of diseased bone wherever situated. Acute ethmoidal and frontal sinus suppuration is, if possible, even more dangerous to health and life than temporal bone suppuration. The intrameatal aural specialist of a past generation was content to flit helplessly about his chosen canal in the manifest presence of lethal complications. Is it or is it not true that the intranasal specialist of the present day, with some brilliant exceptions, may at times be unduly influenced

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*Read before the Ophthalmological and Oto-Laryngological Section of the Academy of Medicine of Cleveland, Feb. 2, 1911.*

by the traditions of his otological kinsman instead of following the teachings of Killian and facing the operation for the complete removal of the disease? Operation for the cure of ethmoidal and frontal suppuration is regarded much in the same way as was the mastoid operation some years ago; hence the fatal frontal sinus cases so surprisingly frankly reported from time to time, as if the disease was inevitably fatal, and as if the lesson that danger attends delay and imperfect operation had yet to be learned.

When the opportunity for a preventive operation has gone by and meningitis has resulted from a local cranial lesion, the chances of recovery are naturally lessened, but even then surgery is not helpless. Many cases recover following the removal of the local disease by an operation not opening the dura, even though symptoms of meningitis are already present.

Even now suppurative meningitis is looked upon as a fatal disease, and some special explanation has been sought for the recovery of some patients presenting apparently unequivocal evidences of this lesion, and of the absence of any appreciable lesion after death in other cases with quite similar symptoms. After the vague terms pseudomeningitis and meningism had been used to designate such cases, meningitis serosa was welcomed as a new fact in morbid anatomy affording an explanation of these phenomena. A focus of infection outside the dura may determine an excess of fluid within the skull, just as disease of a rib may excite serous effusion in the pleura, or disease of the tibia may bring about an effusion in the knee joint. I have had opportunities of observing that clear fluid collects in the subdural cavity when the dura becomes inflamed by the presence of pus external to it.

In the areolar tissue of a limb, an inflammatory focus is always surrounded by a zone of tissue tense and sodden with serum, and indeed, before the pus becomes visible the site of the coming abscess shows serous effusion or edema. The same sequence of events occurs in the cerebral meninges. In the subdural space, which is not divided into compartments, a pond of fluid will form; while in the subarachnoid space of the cortex the tissue, under normal circumstances being traversed by countless rivulets of fluid (like marshy ground), will become edematous and swollen.

Of late years our diagnosis of diseases of the brain and meninges has been assisted by the practice of lumbar puncture.



This gives us certain valuable information concerning the fluid in the meningeal spaces, but does not afford equally certain evidence as to its amount or distribution. In disease of the frontal lobes, whether it involve the meninges or whether it be in the brain substance in the form of an abscess, lumbar puncture does not give us the diagnostic aid that it does when other portions of the brain are diseased. Symptoms of serous or circumscribed meningitis and cerebritis when the frontal lobes are involved are misleading and confusing, due to the fact that these lobes are not within the motor and sensory area.

All intracranial affections accompanied by delirium were formerly confounded together under the name "phrenitis or phrensy," and we doubtless now include under the term meningitis many affections which though attended in their terminal stages by inflammation of the meninges will, as our knowledge of cerebral surgery and pathology advances, nevertheless be shown to be quite distinct diseases, exactly as abdominal surgery has shown us that diffuse suppurative peritonitis is but a terminal stage in several distinct affections, most of which can be recognized and arrested before that dangerous stage is reached. For the present the surgeon classifies meningitis as tuberculous and non-tuberculous, and recognizes that in each variety the pathological effusion may be serous or suppurative, localised or diffused.

This paper is a continuation of reports begun in 1904. Some of the cases included in the series published have been under observation at varying intervals for 20 years. I offer no apology for repeatedly bringing this subject before you for your consideration, because the symptomatology, pathology and treatment of meningeal and cerebral complications of nasal accessory sinus disease is by no means settled, but still remains one of the only partially solved problems. The views which I published in 1906<sup>1,2</sup>, 1907<sup>3,4</sup> and 1908<sup>5</sup>, have been confirmed by more recent clinical observation, and postmortem findings in eight cases.

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1. Clinical Report of Chronic Suppuration of the Nasal Accessory Sinuses. *Louisville Monthly Journal of Medicine and Surgery*, Feb., 1906.

2. A Case of Chronic Suppurative Ethmoiditis and Sarcoma of the Right Temporosphenoidal Lobe with Misleading Symptoms. *The Journal of the American Medical Association*, April 28, 1906.

3. Report of a Case of Traumatic Ethmoiditis—Cerebral Abscess—Death—Autopsy. *Annals of Otology, Rhinology and Laryngology*, June, 1907.

4. Some Mental Symptoms Due to Disease of the Nasal Accessory Sinuses. *Lancet-Clinic*, January 19, 1907.

5. Report of Two Unique Cases in Otology and Rhinology. *Kentucky Medical Journal*, September, 1908.

The most characteristic subjective symptoms met with in extreme cases were, listless and anxious expression, slow pulse and respiration, mental sluggishness, no focal symptoms, slurred articulation, frequent vertigo (when stooping), hysterical symptoms, no ankle-clonus or Babinsky's reflex, complaints made in an irritable whining tone and manner, pain located only in the frontal region.

The history of all of the cases under consideration is that of nasal catarrh, always worse in damp weather or after imprudence in eating or overexertion. The pain is located at the bridge of the nose, back of and between the eyes. It is usually more severe in the morning but wears off after the patient has been up and stirring around for an hour or two. In a large majority of cases the mental symptoms are most pronounced in the form of a depression or irritability, the patient saying that he is irritable without cause, is unable to concentrate his attention upon his work, and rarely ever entirely free from pain except when his catarrh is free, meaning by this a free discharge of mucus and pus from the nose. The causes of the pronounced mental depression are better explained by the neurologist and alienist, though one neurologist who has seen many of my cases with me thinks that the mental symptoms were the most prominent of all those of which the patient complained. It is true that rhinologists have not yet explained the reasons for the intercommunication of the various sinuses, and why the infection of one rapidly involves some of the others. The cribriform plate has been very graphically described by someone as the ventilator of the brain, and this is well illustrated in the mental and physical effects accompanying untreated adenoids.

"Whether the symptoms and conditions are due to intracranial pressure, direct or indirect meningeal irritation, reflex nervous condition, disturbed cerebral circulation or toxemia, is not determined. But the fact remains that in these cases ventilation of the occluded sinuses or cure of the purulent process cured the psychosis; on the other hand retention of pus aggravated the mental defect, or return of the purulent infection in the sinus was accompanied by a return of the psychosis." (Bryant.)



The toxins produced by the bacteria are absorbed and produce an injurious influence upon the cortical cells and nerve fibers of the brain. The proximity of the accessory sinuses to the brain is of signal importance. The conclusion reached by a study of the cases reported is that the ethmoid cells were extensively involved in the pathological process, and in fact the writer does not recall having seen a case of frontal or sphenoidal suppuration in which the ethmoid was not involved.

Meningitis, cerebritis and cerebral abscess of nasal origin, according to a study of the literature of these subjects, are far more frequent than is commonly supposed. John McCoy (*Annals of Otology and Rhinology*, June, 1910) reports two cases in which the entire frontal lobe disintegrated yet there were no focalizing symptoms. The symptoms in these two cases were headache persistent for days and then intermittent; the patients would go for a week or two feeling in splendid health, eating and sleeping well, and would then have severe headache, be depressed and irritable, feeling drowsy, yet unable to sleep or else absolutely wideawake; the temperature and pulse were normal, as was also the urine except for an increase in indican. In both instances the primary infection was in the ethmoid cells.

My own cases are as follows:

Case 1. Sarcoma of the right frontal lobe of the cerebrum, the result of ethmoiditis. (*Medical Record*, Nov. 24, 1906). This case was reported and published under the title of "Some Mental Symptoms due to Disease of the Nasal Accessory Sinuses". The result of the autopsy some months after the published report confirmed the clinical diagnosis of chronic ethmoiditis as the primary source of the meningeal and cerebral condition which ultimately caused death. The detailed report of this case will be published with several others of a similar nature in a subsequent paper.

Case 2. Chronic suppurative ethmoiditis, sarcoma of the right temporosphenoidal lobe. (*Journal A. M. A.*, April 28, 1906.) The patient had been troubled for many years with nasal catarrh, at times large quantities of pus would discharge from the nose, and this would be followed by great relief for some days and weeks. The operation, which gave marked temporary relief, and the autopsy examination showed conclusively that the ethmoid cells were the seat of primary infection extending into the frontal and temporosphenoidal lobes through the necrotic cribriform plate of the ethmoid.

Case 3. Traumatic ethmoiditis and cerebral abscess: death during operation—autopsy. (*Annals of Otology, Rhinology and Laryngology*, June, 1907.) This case was typically one of meningitis and abscess of

the frontal lobe, with no focalizing symptoms. The postmortem findings showed clearly the cause of the trouble was primarily in the ethmoid cells. There was no disease of the pia or dura except over the cribriform plate which was necrotic. A fracture existed through the inner table of the left frontal sinus. The entire anterior and middle cerebral convolutions were softened and infiltrated by pale green pus of creamy consistency. Just internal to the cribriform plate, in the anterior convolution, was the remains of an abscess holding approximately one dram, while there must have been several ounces of pus altogether.

Case 4. Fulminating mastoiditis and pansinusitis involving the frontal, ethmoid, sphenoid and maxillary sinuses: meningitis—death—autopsy. (*Kentucky Medical Journal*, Sept., 1908). This case had been under my care for recurring attacks of headache due to ethmoiditis at intervals of from one to three years for 15 years. In 1899 I removed the anterior half of both middle turbinates which had undergone polypoid degeneration. This was followed by complete relief for several years. Ten years later an acute exacerbation upon the chronic condition rapidly resulted in death. The autopsy showed great thickening of the dura over the cribriform plate, the bone here being necrotic and soft as wet paper, and undoubtedly the point of infection.

Case 5. A woman, aged 45, was admitted to the Good Samaritan Hospital, August 13, 1910. She was in no condition to give her history, being very dull and semidelirious, a typical picture of basilar involvement meningitis. Both middle meati were dry. The middle turbinates were both very large, blocking the ethmoid sinuses from which pus escaped in large amount. The middle turbinates were removed with the snare. The ethmoid cells very necrotic and filled with pus; were removed and drained. The right eye was enucleated for panophthalmitis, probably the result of sphenoidal and ethmoidal suppuration. The globe was the site of an old trouble and was very soft and thought possibly to be causing some of the symptoms of irritation of the sound eye. Operation performed at 8 p. m. Patient rallied from the operation and anesthetic in a few hours but soon afterward became comatose, dying at 4 a. m. the same night. No focal symptoms were present.

Autopsy showed some excess of fluid at the base of brain. The dura over the cribriform plate on either side was necrotic, as was also the plate which was just a layer of granular tissue. To all appearances the plate had not been injured at operation as the dura and the remains of the plate were not disturbed. On the dura over the cribriform plate were two small molds of coagulated pus and fibrin, one on either side of the crista galli. There was some congestion at the base of the frontal lobes which were also quite adherent at their anterior ends to the longitudinal fissure of the falx cerebri. The arachnoid was slightly more turgid than normal and more lymphoid material than usual was present in the fissures. Otherwise nothing was found on section of the brain.

Case 6. A female, aged 60, with ethmoiditis, sphenoiditis and atypical mastoiditis, was seen December 28, 1910. She gave a history of chronic



nasal catarrh and of attacks of recurring pain in the ears for a number of years. These lasted from a few days to a few weeks, the discharge being slight and never very profuse. She had suffered a great deal with these attacks and for three weeks past had been under treatment for otitis media in both ears, towards the last the right ear discharging bloody serum for several days. For 24 hours previous to my seeing her she had been somnolent with marked mental hebetude and slow pulse. She had had an unsteady gait for several days past with a tendency to fall forward first to one side and then to the other in attempting to walk. Pain back of both ears had increased in severity to such an extent that she would cry out in her sleep, placing her hand back of the ear always over the mastoid antrum. When I saw her she had a dull listless expression and the pupils were contracted, though she had had no opiate for 24 hours, and then only 1-12 grain of heroin. She responded slowly and indifferently but intelligently to my questions. Dulness of hearing was not marked. Both auditory canals contained small quantities of serum, epithelium and dried secretion. Both membrana tympani had the appearance of buckskin; but showed no marked bulging; the posterior superior wall of both had the appearance of edema and not that characteristic sagging appearance pathognomonic of suppurative mastoiditis. A blood count showed a leukocytosis of 12,800 with a normal polymorphonuclear percentage. On examining the nose both middle turbinates had undergone polypoid degeneration and were adherent to both the septum and the antrum wall. The mucopurulent secretion oozed out of the upper part of both middle meati. Myringotomy was done in both ears; the smear consisted of pus, blood cells and mucus—a pure staphylococcus infection. There was intense pain on deep pressure over the mastoid antrum on both sides. This tenderness on deep pressure extended down to the tip on the anterior surface of the process. The patient was delirious and with difficulty kept in bed. Urine was scanty; tongue dry; bowels obstinately constipated; temperature subnormal. At 8 p. m. 10 grains of calomel was given, followed in six hours by one ounce of castor oil. This not being effective, two hours later an enema of soapsuds was given and a large quantity of constipated fecal masses passed. Urine was very concentrated, of normal specific gravity and showed no albumin or sugar but an increase of indican. Twelve hours later the leukocytosis had increased to 22,500 and the polymorphonuclears had increased by  $1\frac{1}{2}$  percent. Patient still screamed with pain in her ears. There was now increased edema of the superior wall of the auditory canal and an immediate exploratory operation was done in which both mastoid antrums were opened but found to be normal in every respect except that the aditus was swollen and evidently blocked at the middle ear opening. Both turbinates were now removed close to the ethmoid, and the ethmoid cells were found full of pus and granulations. Bloodclot dressings were used for the mastoid. No packing was used in the nose. There was marked improvement for 16 hours after the operation when she sank into coma, dying three days later.

Autopsy showed no excess of brain fluid. The cribriform plates, tym-

panic plates, sphenoid and pituitary body were normal. Sinus was not thrombosed. Brain on careful section showed nothing abnormal. There was a thickened mottled condition of the pia covering the anterior surface of the extreme lower part of the frontal lobe. There were few adhesions of the dura to the cribriform plate and the appearance was not such as to suggest anything of a serious nature. Only in this one point was there any difference in the appearance of the two sides.

Case 7. A female, aged 49, had had a catarrhal condition involving the nose and nasopharynx since childhood. Anterior turbinotomy had been done two years before for the relief of frontal symptoms, but relief was only partial for six months, then the remainder of the middle turbinates and the anterior ethmoid cells were curetted. Only partial relief followed. She was being treated for gastroptosis and a chronic and very depleting diarrhea which was thought to be tuberculous although no tubercle bacilli had been found. The pain in the head and diarrhea were so severe that the patient was kept under the influence of opium to keep her fairly comfortable. There were recurrent attacks of delirium and irritability which were so severe as to cause the family to consider committing her to an asylum. These attacks occurring every three or four days were relieved only by a copious discharge of thick, yellow pus from the nose. When seen nearly a year afterward I found the following condition: constant headache only partially controlled by opium; persistent diarrhea; patient emaciated; expression one of severe suffering and mental irritability; exophthalmos of both eyes, worse on the right; abdomen flabby and doughy to the touch; no enlarged glands felt; both nares filled with thick yellow pus and crusts which also covered the posterior pharyngeal wall; after irrigation pus could be seen coming from the ethmoid cells on either side and from the infundibulum on the right side; transillumination positive on the right and a radiograph showed a dark shadow over the whole sphenoidal and ethmoidal region and over the frontal sinus. The patient was sent to the hospital and operated on two days later. The incision was made to curve more beneath the eye and also longer at its external angle nearly to the end of the eyebrow. The cortex was very thin and soft, the whole cavity of the sinus being filled with soft polypoid granulations and the opening of the infundibulum being almost completely blocked by necrotic bone and granulations admitting the passage of only a very small probe. After curetting these granulations thoroughly, the whole inner table of the sinus was found in a stage of advanced necrosis, fully the outer half being entirely absorbed, at which site the dura was dark and covered with firm granulations. The ethmoid cells were found filled with similar granulations. The remaining middle turbinates had previously been removed through the nose and the posterior nares tamponed before the sinus was opened. The sphenoid was also filled with granulations. The infundibulum was enlarged. The septum was removed and the opposite sinus found healthy. The blood showed hemoglobin 85%; red blood cells 4,100,000; leukocytes 11,200, polymorphonuclears 78%, small mononuclears 19%, large mononuclears 3%. Urinalysis—clear, amber, acid, very



faint trace of albumin, no sugar, large excess of indican. Postoperative course was uneventful except for severe pain in the sinus region until the fourth day when pain in the head was more severe and harder to control. She refused nourishment, was very restless and at times mildly delirious with hallucinations, once attempting to jump from the window. The same condition prevailed for the two following days and nights; she was quiet through the day and delirious at night unless controlled by narcotics. The delirium gradually decreased and she returned home on the sixteenth day and made an uneventful convalescence. There was no return of the diarrhea.

She remained in fair health for three months when the pain in the frontal region returned, with slowly increasing swelling of the soft parts over the operated area and with increasing loss of weight and slight exophthalmos. The condition increased in severity until May, 1910, when she was again operated upon. The right sinus cavity was found to be occupied with a fluctuating, tense protrusion of dura. The dura was separated from the bone and the opening in the skull was enlarged. The dura was found thickened, all of the remainder of the table was absorbed. There were a few granulations at the nasal angle and over the orbit. Two or three drops of thick cheesy material escaped from the granulation tissue at the nasal angle when exposed and a similar amount of the same material was flushed from the opposite sinus, which was opened and curetted from the right side. The membrane of the left sinus was thickened but when scraped out left the bone in good condition. The bone around the original opening was softer than normal. The dura was opened now and an explorer inserted into a cyst of the frontal lobe which was covered with a very thin layer of brain tissue. About 1 to 1½ ounces of thin, slightly straw colored fluid was evacuated. The convalescence was slow and uneventful for several weeks after this operation, the patient regaining health and strength and flesh satisfactorily. At the end of the fifth week a bulging under the skin over the area operated upon was noticed. This proved to be a cerebral hernia but it gave no trouble except requiring daily applications of aseptic compresses. The patient gradually became weaker and two weeks later was confined to her bed from which she never got up, finally dying from chronic sepsis four months later.

The postmortem, held by Dr. Estell, revealed the anterior wall of the right frontal sinus absent; the brain tissue was adherent to the scalp—no dura. The right cribriform plate of the ethmoid and the whole of the superior orbital plate on the right side were necrotic, as was also the superior surface of the body of the sphenoid. The dura on the left side was normal; some injection of the pia mater. About one ounce of cloudy fluid was found in the posterior fossa. On the right side the dura was absent over the area of the frontal sinus extending upward about two inches along the longitudinal fissure and outward about three inches—bounding the exposed area of brain tissue and extending about one inch. The dura was much inflamed and thickened and very densely adherent to the brain tissue. The dura was adherent over the anterior sur-

face and base of the right temporal lobe. The dura was normal over the occipital lobe and the cerebellum. The whole base of the brain, pons varolii, medulla and cord were bathed in cloudy fluid. The pons varolii, medulla and cord were all apparently normal on section. Incision of the right frontal lobe revealed a cavity, which occupied the entire lobe and contained creamy, flocculent fluid. The walls of the cavity were formed by the cortex of brain and were about  $\frac{1}{4}$  inch in thickness. The anterior wall was formed by the cerebral hernia which was adherent to the scalp at the site of the frontal sinus. Incision of the right temporal lobe showed the anterior half of this lobe entirely degenerated, the rest of the lobe being normal. The occipital lobe was also normal. The left side of brain was entirely normal on section; cerebellum also normal on section.

Case 8. J. T., Negro, aet 60, was first seen by me on the afternoon of Jan. 23, 1911. The hospital interne reported that he had been admitted complaining of slight headache and dizziness with moderate daily epistaxis. After being in the hospital 10 days, under the care of an internist and a general surgeon, he had a hard chill; this was followed by chilly sensations at intervals. There was little rise of temperature or acceleration of the pulse. The right leg suddenly became swollen from the ankle to the upper third of the thigh but there was little or no pain. Then the right ear began to discharge (without previous earache), the pus showing staphylococci and diplococci, mucus and epithelium. On the following day the left ear discharged pus of the same character. The glands of the neck became enlarged and the eyes protruded to such an extent that the lids were stretched to their utmost and failed to completely cover them, and mucopurulent secretion discharged freely. The eyelids became edematous, as well as the tissues over the frontal bone. He was very anemic when admitted to the hospital and the epistaxis was checked with difficulty. When I saw him he presented the picture of a double "frog eye." Exophthalmos of both eyes was pronounced and the ocular conjunctiva was greatly thickened and of dark, red color. There was pain on pressure under both orbital ridges. Both middle meati were filled with crusts of yellow pus and mucus. There was an old cicatrix in the left cheek, the result of an "abscess in the cheek and jaw bone" years ago. He was very restless and semiconscious. A differential blood count showed leukocytes, 26,800: polymorphonuclears 75%, lymphocytes 22%, large mononuclears 1%, transitionals 2%, eosinophiles 2%. The posterior wall of the pharynx was covered with crusts and mucus similar to that seen in the middle meati of the nose. An ophthalmoscopic examination was impossible on account of the edema of the eyelids and restlessness of the patient. There was a perforation in each membrana tympani, sagging of the posterior superior wall of the auditory canal on both sides, tenderness on deep pressure over both mastoid antri and at the tip of each, and continuous flow of pus under pressure from both auditory canals. In no other case have I seen such a quantity of pus escape from the ear; the canal would refill almost instantly after being thoroughly emptied by wiping with a probe covered with absorbent cotton. A diagnosis was made of thrombosis of the cavernous sinuses with pan-



sinusitis of the nasal accessory sinuses and double mastoiditis, and preparation for an immediate operation was made. But little ether was required and just after completing a hurried mastoidectomy, in which the cortex was found sclerosed and unusually thick, the patient died.

The autopsy report by Dr. Woolfolk Barrow showed the eyes bulging. The skin over the lower frontal, orbital, infraorbital and upper nasal regions was bulging. There was a flow of pus from the left ear. Palpation revealed an edematous condition of the swollen regions with increased pressure. The brain was anemic. An increased amount of blood-tinged fluid was present. The dura was thickened. The superficial blood vessels contained very little blood. The brain substance on section was very anemic. The cavernous sinus was filled with a firm clot of coagulated blood. The plate of the sella turcica was easily broken through. From the large sphenoidal sinus thin watery pus under pressure escaped. The ethmoid cells and other accessory nasal cavities were filled with thin pus.

In 63 cases of ethmoidal and frontal suppuration upon which the modified Killian operation was performed, all had symptoms similar to the ones already referred to. In five the quantity of pus was enormous and under pressure. In three others erosion had taken place through the inner table of the frontal sinus. Two of these have already been referred to in this report. In those cases in which there was the smallest quantity of free pus, but instead a number of granulations completely blocking up all drainage and ventilation, the symptoms were most violent. Only 17 of the 63 (about 3% of the entire number) operated upon presented the symptoms of meningitis or cerebritis. In no class of operative cases have I found better postoperative guidance than that given by the differential blood count. The pulse, temperature, appetite and mental condition often did not indicate a damming up of the pus or any new foci of infection for days, but the daily blood count I have found to give a safer indication of the progress of the case than anything else. I am unsatisfied with the progress unless there is a daily decrease in the leukocytosis, and a return to a normal polymorphonuclear percentage. These blood counts are made at first daily, then every other day, then weekly until the patient is discharged.

### Conclusions.

- (1) The pathological condition need not be suppurative in order to produce painful or fatal results.
- (2) The infection originates primarily in the ethmoid cells

—or their offshoot, the middle turbinate bone—the frontal and sphenoidal sinuses becoming involved secondarily either through extension by continuity of tissue or by blocking of their natural openings (for drainage and ventilation) long enough for their retained secretions to become purulent.

(3) The primary infection in the ethmoid may result in hyperplasia as a result of long continued inflammation, and the middle turbinate may undergo polypoid degeneration. The increase in size in the latter condition blocks the natural openings of the remaining accessory sinuses, which communicate with the middle meatus, thus producing pansinusitis.

(4) Chronic inflammation, thickening, and adhesion of the meninges covering the cribriform plate, probably exist more frequently than is suspected and are the cause of many cases of chronic headache.

(5) Symptoms of serous or circumscribed meningitis and cerebritis when the frontal lobes are involved, these parts not being within the motor and sensory area, are misleading and confusing.

(6) A similarity in the symptoms was seen in 17 cases: ten of these were fatal; in eight the postmortem findings were practically the same; and in the other two the symptoms immediately preceding death were so much like the others that we are justified in concluding that the same pathological, meningeal and cerebral condition existed and that the infection started primarily in the ethmoid cells, though the symptoms which led to the surgical treatment was involvement of the frontal sinus.

(7) The extension of infection to the meninges or anterior frontal lobes or cerebrum, sometimes leads to a fatal ending very quickly, but more frequently it is very slow, the patient finally dying from systemic toxemia.

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### Report of a Juvenile Case of Paresis.

By THEODORE DILLER, M. D., Clinical Professor of Neurology in the University of Pittsburgh, Pittsburgh, Pa.

Juvenile paresis must be accounted a rare disease, despite the fact that the sum total of reported cases is now very considerable. In a practice of many years in the field of neurology and psychiatry, the case to be related is the only one which I have encountered. In a clinical way the case seems quite clear;



and it occurs to me that the published record of it might be worth while as a contribution to the literature of the subject.

A man aged 20, a printer, was first seen by me April 25, 1908. His previous history is unimportant except that the boy's father contracted lues 25 years ago.

The boy went to school up to the age of 16 and made fairly good progress. He then went to work as a printer.

In November, 1907, he went to California and returned from there only two weeks ago. Before he left for California the father noted nothing wrong with him. The boy attended to his work in a satisfactory way. He was a member of the Boys' Brigade in which he was much interested.

Since his return from California the father notes that he is very sluggish in a mental way and very forgetful and indifferent. He sits about showing little interest in anything. His gait is very uncertain. He has fallen a number of times. Last Sunday he had a fainting or sinking spell as he came from church; it was not a convulsion. While in California he had several attacks which were said to be like "strokes" with some loss of consciousness without convulsions.

*Examination.* The boy is very dull and sluggish in a mental way; his memory is bad; he adds and subtracts simple figures incorrectly; he shows little or no interest in his surroundings. He has a very marked speech defect, the speech being slow and the words slurred. There is a tremulous condition of the tongue and the handwriting shows a very marked tremor. The knee and Achilles jerks are much exaggerated; no clonus. The pupils are unequal, dilated; no reaction to light whatever, or to accommodation. The boy complains in a vague way; and when asked if he feels badly says, "Yes, in the stomach." There have never been any expansive ideas at any time.

May 11, 1908. I hear that the boy's mental condition is deteriorating. But a few days ago he had another convulsive seizure.

August 2, 1909. The father writes me that his son's condition is such that he is absolutely incapable of taking care of himself; and that he falls three or four times a day simply trying to walk on the bare floor.

December 6, 1909. The mother reports that the boy is going down hill. He sits about the house all day and is often uncleanly in his habits. He has had no convulsive seizures during the last few months.

December 17, 1909. He was examined by Dr. George Wright who reports that the boy has lost much in weight and has a greasy skin and tremulous lip and very marked speech defect; pupils unequal and immobile; knee jerks absent. He exhibits a moderate hemiplegia which followed an apoplectiform attack from which he suffered a short time ago. He soils himself constantly and is difficult to handle. His dementia is very marked. At times he is noisy, whistling, yelling, clapping his hands, etc.

January 13, 1910. The patient died today.

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## EDITORIAL

### The Amount and the Tension of the Gases of the Blood.

The chemistry of respiration is a portion of physiology which has been generally regarded as of little application in medical practice. The complex nature of a great part of the experimental work on which the knowledge is based, coupled with the failure on the part of those unfamiliar with gas analysis to interpret the meaning of many of the terms employed, has been largely responsible for this condition. At present there is some confusion regarding the difference between the *amount* and the *tension* of the blood gases—more especially in connection with the carbon dioxid—and it may be well, in view of the recent attention that has been given to this sub-



ject, to offer a brief explanation of what these terms mean and to indicate in what way alterations in these blood-gas values are associated with certain pathological states.

When  $\text{CO}_2$ , either in a pure state or mixed with other gases, is brought in contact with water, the water dissolves an amount of it which is directly proportional to the partial pressure or tension of the gas. That is to say, when the tension is doubled the amount dissolved becomes twice as great. It is evident in this simple case that amount and tension run parallel with one another.

On the other hand, let us take the case of a weak solution of caustic alkali. When this is exposed to  $\text{CO}_2$  an alkaline carbonate is formed: if the alkaline solution be strong enough all of the  $\text{CO}_2$  will be removed from the atmosphere; if it be too weak to do this some gas will remain unabsorbed, but this will bear no relationship to that combined with the alkali. In other words the amount of gas combined in the liquid will bear no proportion to the tension of the gas in the atmosphere, so that we cannot calculate the one value from the other; for both, separate methods of determination must be employed. The method employed for determining the amount in such a case is to add a weak non-volatile acid to the solution and collect and measure the gas thereby evolved: to determine the tension we must analyze the atmosphere which is in contact with the liquid for the percentage amount of  $\text{CO}_2$  which it contains. Suppose we found 5%; then we would state that the tension equals 5% of the total pressure of the atmosphere, i.e., in millimeters of mercury  $760 \times 5 \div 100 = 38$  mm. The alkaline solution is analogous with the blood,  $\text{CO}_2$  being combined therein as carbonates.

But there is an important difference between the two, for besides  $\text{CO}_2$ , the blood contains other weak acids, so that its available alkali is only partially combined with  $\text{CO}_2$ . These other acids in blood, taken together, exercise a mass influence which is about equal to that of the  $\text{CO}_2$ , so that whenever the one of these groups of acids increases in amount it tends to displace the other from its combination with the alkali. It is on account of this process that the blood can carry variable amounts of  $\text{CO}_2$ . Thus, in the tissues  $\text{CO}_2$  is produced in large amount; the tension, therefore, rises, causing the gas to diffuse into the blood where its mass influence outweighs that of the other

acids thus displacing these from their combinations with alkali, with which it combines to form carbonates. The  $\text{CO}_2$  does not all become thus combined, however, some remains in the free state, that is to say, in simple solution in the plasma, so that in any space surrounding the blood some  $\text{CO}_2$  would be given off, thus creating a tension. Such a space exists in the pulmonary alveoli, into which, therefore, the  $\text{CO}_2$  in simple solution in the plasma diffuses. If the alveoli were closed sacs the diffusion would proceed only until the tension of  $\text{CO}_2$  in them equalled that of the  $\text{CO}_2$  in solution in the blood. But such is not the case. The alveoli are ventilated by the respirations, so that the  $\text{CO}_2$  in them is removed, thus lowering the tension. Meanwhile, in the blood some carbonate has become decomposed because the removal of the  $\text{CO}_2$  in simple solution,—the lowering of its tension that is to say—allows the other acids to appropriate some of the alkali; more  $\text{CO}_2$  therefore, goes into solution and diffuses into the alveoli, and so on.

We see then that the average tension of  $\text{CO}_2$  in the blood is to a large extent controlled by the production of the gas in the tissues and its loss into the alveoli. There is another factor which controls the tension, however, and that is a change in the amount of the other acids of the blood and of these acids namely which compete, as it were, with the  $\text{CO}_2$  for possession of the alkali. The lactic acid produced by muscular exercise, when it enters the blood, displaces some of the  $\text{CO}_2$  from its combination with alkali—just as acid does when mixed with a carbonate solution—and the  $\text{CO}_2$  thus freed raises the tension in the plasma. The average tension of  $\text{CO}_2$  in the blood is readily ascertained by collecting the alveolar air and estimating the percentage of this gas which it contains. This amounts to the same thing as analyzing the atmosphere surrounding the blood. Alveolar air is readily collected and analyzed by Haldane's method.

The tension of  $\text{CO}_2$  in the blood has a great influence on the respiratory center; a rise in  $\text{CO}_2$  tension strongly excites it. The respiratory center has a certain physiological threshold of excitability to which the tension of  $\text{CO}_2$  in the blood is normally adjusted so as to just overstep it, thus causing its stimulation. It is plain then that the respiratory movements may be affected by 1. a lowering of the tension of  $\text{CO}_2$  in the blood below the threshold value (this is sometimes called *acapnia*),



2. a rise in the  $\text{CO}_2$  tension, and 3. a raising (or lowering) of the threshold of the center.

The first of these—*apapnia*—occurs after excessive ventilation of the lungs, as after taking several deep breaths, and it results in a cessation of breathing, or *apnea*. In *apnea* normal breathing does not start again until the tension of  $\text{CO}_2$  has risen sufficiently to overstep the threshold of excitability of the center.

The second—hypertension of  $\text{CO}_2$ —is the cause of the increased respiration produced by muscular exercise, for, as explained above, the lactic acid breaks up some of the carbonate of the blood and sends more  $\text{CO}_2$  into solution in the plasma.

The third—raising of the threshold of the center—is the cause of the faulty breathing resulting from anemia of the center. It is to the last cause that *Cheyne-Stokes* respiration is due, the alternating *apnea* and *dyspnea* observed in this condition being explained by the fact that besides being dulled the center has also become *ataxic*. If the tension of  $\text{CO}_2$  in the alveolar air be determined in this condition it will be found to be very high at the beginning of the *dyspneic* period and very low towards the end of it. Evidently the *dyspneic* respiration has removed an excess of  $\text{CO}_2$  from the alveoli and thus lowered its tension in the blood below the level at which it can excite the dulled center. *Apnea*, therefore, sets in and persists until sufficient  $\text{CO}_2$  accumulates to raise the tension again, when the respirations reappear. If this explanation is correct the administration of  $\text{CO}_2$  to the patient should, by holding the tension constantly high in the blood, remove the *Cheyne-Stokes* type of breathing; such has been found to be the case. But in using this form of treatment care must be taken to administer the  $\text{CO}_2$  with a lot of air (i.e. in low percentage) for otherwise the gas will cause irritation of the larynx and extreme discomfort to the patient. Oxygen should be administered along with the  $\text{CO}_2$  for by so doing the condition of the center will be improved and the threshold of excitability lowered. Another effect of the oxygen will be to oxidize the acid substances (such as lactic acid) which are apt to accumulate in conditions of faulty respiration.

It is asserted by Henderson that the shock which follows rapid breathing as a result of stimulation of afferent nerves,

e.g. after an injury, is due to acapnia and that one point in the treatment of such cases should be to hold a paper bag over the nose and mouth and thus make the patient rebreathe his expired air so as to keep up the tension of  $\text{CO}_2$  in the blood. If the shock be so profound that breathing has ceased entirely, the best form of treatment is probably to apply artificial respiration by blowing into the mouth. In this way, the  $\text{CO}_2$  in the expired air of the resuscitator corrects the acapnia in the patient. All forms of apnea can usually be cut short by this method. In resuscitation from drowning it should be tried when other methods fail. It is impossible to state to what degree shock really depends on acapnia but certainly profound general disturbances can be induced in any normal person by prolonged and deep breathing. In some of those who have performed this as an experiment on themselves most distressing symptoms, besides apnea, have been induced. Many of these symptoms, such as cyanosis, are due to oxygen deficiency in the tissues on account of the absence of breathing. Deficiency of oxygen does not by itself cause stimulation of the respiratory center until the percentage has fallen far below its normal level.

J. J. R. M.

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### Etiology of Epidermic Diarrhea in Infants and Adults.

With the approach of the summer months in which the prevalence of these diarrheas adds enormously to the death rate, an article in the December number of the *Journal of Hygiene* is of interest. The author, O. H. Peters, has made a careful study of the disease as occurring in the town of Mansfield in England, during the summer of 1908. The town is one of some 33,000 inhabitants, and has grown rapidly in the last few years so that a fair comparison can be made with many of our own cities of similar size.

The chief interest of the investigation is that the author did not confine himself to cases reported to the Health Office or coming accidentally under his notice, but took two large and characteristic districts and investigated *every case of diarrhea* both in children and adults *during the whole period*. The various possibilities were carefully considered and the investigation appears to have been very complete. No attempt was made to differentiate varieties of organisms, the matter being taken up rather from the standpoint of methods of diffusion of the infection. It was



noted that there were a great many cases in the adults but that on account of their very slight mortality they received much less notice than those in infants which gave a very high rate. In general it appears that the incubation period was very short, apparently less than 24 hours in the majority of cases and that the duration of the attack varied directly as the age and condition of the patient. The mortality in the same way was enormously influenced by the previous condition of the patient. It is the opinion of the author that the transfer of the disease is in general by direct contact, by house infection and as a corollary he notes that the type of plumbing or absence of it is probably of comparatively little importance as the contagium is carried in the excreta of the infants who do not use the privy, or of older persons who soil their garments through lack of time to reach the closet. This then reduces the question largely to one of personal and household cleanliness and indeed this is the main feature on which Peters dwells. He considers that while the disease is far more prevalent in children who are bottle fed, the fact that the boiling of the milk has no bearing on the incidence of the disease makes it improbable that this or indeed other food is the main factor, or even a very important one, the cause being rather that these children are in the main older, move about more, and are therefore more exposed to dirt on the floors. With regard to the question of fly transmission the author is non-committal, noting however, that the curve of the epidemic corresponds quite well with both temperature and fly curves. He appears to feel that the disease is one primarily resulting from unclean surroundings, and these rather in the house than in the vicinity, as would indeed seem to be the case when one considers that the chief incidence is among children who are too small to be greatly subject to the latter factor. The condition must be met by enforcement of cleanliness, and no less by education of the people to the value of this simple means of prophylaxis. His attitude towards milk, that it should always be given unboiled and that with the impossibility of getting fresh milk a wet nurse or a cow or goat should be obtained, is open to question in view of the recent developments along the line of the use of pasteurized and sterilized milk, and would complicate matters very much in American cities.

The material is well arranged, conveniently divided and is worth a careful reading by anyone interested in the subject, and

is perhaps the most complete investigation of a single seasonal epidemic that has yet appeared. It is also valuable as an indication of what may be done along the lines of epidemiology by a properly educated and equipped health officer, with no especial assistance other than the ordinary machinery of his department.

R. G. P.

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### **A Campaign for Sight Saving.**

In May of 1910, the Society for Promoting the Interest of the Blind in Cleveland organized a special Committee for the Prevention of Blindness, inviting to this committee representatives from various organizations. These were represented as follows: The Academy of Medicine of Cleveland, by Dr. C. C. Stuart and Dr. Arthur Bill. The Homeopathic Medical College, by Dr. A. E. Ibershoff, Dr. H. D. Bishop and Dr. W. H. Phillips. The City Board of Health, by Dr. C. E. Ford. The Visiting Nurse Association, by Miss Matilda L. Johnson and Mrs. J. H. Lowman. The Babies' Dispensary and Hospital, by Mrs. Edward Bushnell and Miss Helen Bever. The Humane Society, by Mr. A. B. Williams, Jr., and Mr. Dan Cull. The Associated Charities, by Mr. E. C. Foster. The Society for the Blind was represented by Dr. W. E. Bruner, Chairman of the Committee, and Miss M. A. Campbell, Secretary.

A very superficial canvass of the city for this committee made, incidentally in their work, by the various organizations whose agents visit in the homes of the poor, discovered many midwives advertising and practising as such without authority. A blind baby was brought to the Babies' Dispensary, the diagnosis being blindness due to ophthalmia neonatorum; it was found that a midwife had attended at its birth and had not reported the condition of the eyes to a physician or to the Health Board; this midwife was prosecuted, convicted and fined. The publicity of this conviction through the newspapers and among midwives resulted in reports of other cases of blindness due to neglect on the part of midwives.

It seemed apparent that the first duty of this Committee for the Prevention of Blindness should be the securing of more definite knowledge of the practice of midwifery in the city. Accordingly, in October, 1910, the Committee engaged the services and paid the salary of a visiting nurse for a preliminary investi-



gation of certain groups of midwives. The report of this work is as follows:

"In making this report to you it is not necessary to review the history of midwifery or point out the many reasons for its existence, but rather to bring before you some of the methods and circumstances under which it is being practised in our own city. A little explanation of how the midwives' names were obtained and how their histories were taken may make clearer what follows. We are indebted to the Board of Health for their list of registered and unregistered midwives, to Dr. Hammond for another list, and to information furnished by several of the Visiting Nurses as well as by the midwives themselves.

"Each midwife was called upon in her own home and unless she was there no history was taken. Her own statement as to her nationality, ability to read and write, and general care of her patient was accepted. Her bag and its contents were noted only when inspected and her diploma and license were counted when seen.

"The list from the Board of Health contains 134 names, of which 56 are registered, 53 unregistered and 25 uncertain. The other list often repeats those names already on the City Hall list. Seven midwives have been seen who are not registered and evidently are not sending birth certificates to the City Hall. Histories have been taken in 91 cases.

"The nationalities represented are as follows:

German .....	21	Slavish .....	11
Hungarian .....	18	Polish .....	10
Bohemian .....	14	Italian .....	3
Austrian .....	11	Russian Jew .....	2
		Irish .....	1

"Of this number 75 can read and write a foreign language, five can read and write English, 10 can neither read nor write any language, one can read (but not write) English, 32 can speak English (for the most part poorly), 21 have an Ohio State license, 23 have a Probate Court license, 47 have no license (16 of whom have no sign), 46 have foreign diplomas, 13 have diplomas from the United States (eight of these from a Cleveland school.

"Of the City Hall list of 134 those registered number 56; of whom five have moved and could not be located, one has died and 11 have new addresses. Those unregistered number

53, of whom one could not be located, one has moved out of the city, eight are licensed, 17 have new addresses, three are listed under the wrong names. Those of uncertain listing number 25, of whom nine have a State license, five have been listed before under other names, and three have new addresses.

"Seven unregistered midwives have been seen who are not on the City Hall list, and 23 of the 134 on this list have not been visited.

"Of the 91 midwives whose histories have been taken 17 have practised 30 years or more, 36 have practised 20 years or more, 13 have practised 10 years or less.

"After these midwives begin to practise they have no further instruction or supervision and have to use their own judgment. How much can a midwife trained 40 or 30 or even 20 years ago know about modern asepsis and antisepsis? Of these women 51 say that they do not use any medicine in the baby's eyes. Some who are using drugs use borax, "a little camphor water," salt water, Dr. Thomas' celebrated eye water, etc. Most of the midwives know enough to report "sore eyes" to a physician but some have a very poor understanding of the real meaning of infected eyes. One old woman said that in all her practise she has had only two cases and they were nine days old; another said that some doctor from Columbus told her to let him know if babies had sore eyes but she had not had any yet.

"Our State requires the midwife to report to the City Hall all births at which she is in attendance, but one midwife who cannot read or write and is without a diploma, or license, when asked about birth certificate blanks said she had none but she always told her priest about new born babies. Another who cannot read or write English, who holds no State license and who does not have a sign on her house, had her husband explain how they wrote in the answers on the birth blanks, and later took them to one of two physicians of their own nationality, who put his signature to the certificates before sending them to the City Hall. At present some of the most illiterate, and least qualified women without any diploma, hold old Probate Court licenses allowing them to practise midwifery on the same basis with the more recently trained and State licensed women.

"We are informed that within our own city we have a school of midwifery graduating midwives after a course of instruction varying in time from four lectures of one hour each



to a term of six months. One woman reports that soon after coming to Cleveland, she advertised as a midwife in a local paper; that then the physician in charge of the Cleveland School of Midwifery sent a woman who spoke her language to tell her to come and see him, which she did. This midwife has Budapest and Roumanian diplomas dated 1905 and her outfit is very neat and complete. This physician told her she could not practise without a State license and also that she could "learn by him." She arranged to take his course, which in her case was four lectures of one hour each. In her own words, she "learned just from the book, no practice." Later he advised and arranged for her to go to Indianapolis, to take the State examination. After passing this examination the State Board wrote to ask where she expected to locate in Indiana. She had not planned to leave Cleveland, but upon the same doctor's advice she went into Indiana again for a few days, he having written the State Board as to where to send her license. She said she had to go to the town "to get her paper and to swear." For this instruction and advice she says she paid \$25.00. A number of the later graduates of the Cleveland School of Midwifery have been sent into other States to take the examinations.

"We are largely responsible for the type of midwife who is practising among our foreign people. The midwife comes to our country with her European diploma and a good bag containing two thin trays which telescope and hold all her equipment—glass tips, bath and clinical thermometers, scissors, tape in a small metal case, an enamel fountain syringe, bottles with their labels burned into the glass, hand brush, nail file, etc. She comes without a knowledge of our written or spoken language, so naturally locates among her own people. She puts out her sign and is ready for work. She hears that she must have a license but almost at the same time she learns that her neighbor who has a large practice has no "paper" and so she thinks it useless or if she is timid she seeks advice from a local physician who speaks her language. She gets good advice or bad, but more often indifferent. If she wishes to get the State license she must have some one to advise her and to whom can she go? Sometimes she is told that she must take the examination in English. Again she is sent to some adjoining State where she can take it in her own language. Through carelessness she is sometimes sent to Columbus when the examinations are to be in

Cincinnati. She tries once more to practise without a license—which she knows is illegal. After a time she discards her European bag, because it is not like the one used here, and in its place she gets a small one and transfers part of her equipment to it. Later the rubber douche bag and rubber tips replace the enamel and glass ones. Her bottles are broken and it costs too much to keep them filled. Gradually she grows more and more careless and in a few years a small handbag or a piece of newspaper will carry all she needs to take with her in her practice—scissors and string.

“While our State permits the practice of midwifery could the law not be enforced and make it possible for only the best midwives to practise, thus conserving many lives and lessening much suffering?”

At the time that this report was made public through the newspapers, the Society had secured the arrest of a second midwife for failure to report sore eyes in a baby four days old; again the midwife was convicted and fined, and the publicity resulted in more reports of cases of active ophthalmia, by parents, midwives and interested neighbors.

On January 1, 1911, the Board of Health of this city added ophthalmia neonatorum to the list of infectious diseases to be reported by physicians.

During the months of December, 1910, and January, 1911, the State Board of Registration through its representative, Dr. A. P. Hammond, arrested 24 midwives for unlawful practice. The Society for the Blind caused the arrest of four others for failure to report sore eyes. In a majority of these cases convictions were secured and fines imposed, the fines in some cases being remitted on the condition that the midwife should not practise until such time as she should be able to qualify under the laws of the State.

In December, 1910, the State Board of Health and the State Commission for the Blind jointly began the free distribution to registered midwives and physicians, of an outfit (containing a prophylactic for ophthalmia and accompanied by a circular giving directions for the care of the eyes).

The object of the Committee in its campaign against careless practice of midwives was educational. It has been that and more. It has resulted in the saving of sight to a score of babies. Following the publicity in the newspapers of cases of blindness



resulting from neglect of midwives there have been reported to some one of the affiliated organizations represented on the Committee, 38 cases of ophthalmia in children under five years of age. In seven of these the disease had run its course and four were totally blind, while three were partially so. In the remaining 31 the disease was still active and of this number 23 have been treated in time and the sight has been saved, six have died from other causes, one is still under treatment, and one has lost the sight in one eye.

M. A. C.

### The Los Angeles Meeting.

The plans for the Los Angeles Meeting of the American Medical Association the week of June 26, as outlined by Dr. M. L. Harris, Chairman of the Committee on Transportation, in the *Journal of the American Medical Association*, are most complete. The committee announces that it has arranged for a special train from Chicago to Los Angeles over the Santa Fe route; this train will be a counterpart of the famous "California Limited" and will afford every first class accommodation. This train is to run via Grand Canyon, upon the following schedule:

Lv. Chicago 8:00 p. m. Wednesday, June 21.  
Ar. Kansas City 9:00 a. m. Thursday, June 22.  
Lv. Kansas City 9:10 a. m. Thursday, June 22.  
Ar. La Junta 10:40 p. m. Thursday, June 22.  
Ar. Albuquerque 11:05 a. m. Friday, June 23.  
Lv. Albuquerque 12:30 p. m. Friday, June 23.  
Ar. Laguna 3:30 p. m. Friday, June 23.  
Lv. Laguna 3:30 p. m. Friday, June 23.  
Ar. Grand Canyon 6:30 a. m. Saturday, June 24.  
Lv. Grand Canyon 10:00 a. m. Sunday, June 25.  
Ar. Los Angeles 7:00 a. m. Monday, June 26.

"At Albuquerque a stop of one hour and a half will be made in order to afford an opportunity for all to visit the very interesting collection of Indian and Mexican hand work. This is undoubtedly the finest collection of Indian and Mexican work in the world. At Laguna a stop of one hour will be made, affording an opportunity to visit the Pueblo Indian Village. These short stops not only break the monotony of the trip but also permit of sightseeing which cannot be had on any of the regular trains.

"A stop of 28 hours will be made at the Grand Canyon. It

is unnecessary to dilate on the wonderful beauty of this work of Nature. The time spent here is sufficiently long to permit of descending into the canyon and also of visiting points of interest on the rim. Being there over night also affords an opportunity of seeing the sun rise and set. These sights alone are well worth the trip.

"The train will arrive at Los Angeles at 7:00 o'clock Monday morning in time for the delegates to attend the opening meeting of the House of Delegates. For those members who do not care to reach Los Angeles before Monday evening, arrangements will be made whereby cars will be taken via Redlands and Riverside and sufficient time given to visit both these interesting points, reaching Los Angeles about 6:00 p. m.

"The round trip fare from Chicago is \$62.50 with an addition of \$6.50 for the Grand Canyon side ride. The Pullman rates are: upper berth \$12.80, lower berth \$16.00, compartment \$45.00, drawing-room \$56.00. These rates include the side trip to the Grand Canyon and also provide for the occupancy of the cars at the Grand Canyon if so desired.

"One may return by any direct route, which means by any route going as far north as San Francisco and Ogden. To those who wish to return by any of the northern routes, an additional fare of \$15.00 will be charged. These rates are not available for both going and returning by the northern routes. All those, therefore, who contemplate visiting Yellowstone Park, the Canadian Rockies or other points of interest on the northern routes are cautioned to see that they go by some of the southern routes and arrange for these stop-overs on their return trip. There will be plenty of time to make all of these trips after the meeting on the return passage, as the return limit on the tickets is September 15, but there will not be time to make these extended side trips going."

Dr. Harris also advises that he has arranged through Dr. Powers of Denver that members attending the Surgical Convention at Denver, will leave Denver at an opportune time so as to connect with the special train at La Junta, Colo., i. e., leaving Denver about 3:45 p. m. Thursday, June 22, sleepers to be attached to the A. M. A. special at La Junta, Colo., about 10:30 p. m. June 22.

Through tickets will be on sale from all points in Ohio at



proportionately higher rates and in order to secure choice accommodations upon the "American Medical Special" it is advisable to make reservations as soon as possible since such reservations are subject to the contingency that an emergency may compel cancellation.

Should enough early reservations be made by Cleveland members a special sleeper will be run to connect with the special train at Chicago. Rates for points east of Chicago are to be announced later but the probable rate from Cleveland will be \$72.50 for the round trip. We are advised that many members in the vicinity of Cincinnati have already signified their desire to go to Los Angeles by this special A. M. A. train.

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### The Ohio State Meeting.

Plans for the coming meeting of the Ohio State Medical Society on May 9, 10 and 11, 1911, in this city are assuming definite shape and the indications are that we shall have one of the most successful meetings that has ever been held. The various committees in charge of the preparations have been actively engaged in perfecting the manifold details that require attention and it is the work of one of these committees to which we particularly wish to draw the attention of members of the Cleveland Academy of Medicine. The committee to which we refer is the Finance Committee which, as in almost all undertakings, plays a most necessary part in seeing that the necessary funds are forthcoming.

It is customary for the profession of the city in which the meeting is held to assume the expense necessary to provide the place of meeting and the space for exhibits and to entertain the visiting doctors and their wives. To do this requires money and it has seemed wise to the Finance Committee to obtain this by means of an assessment of \$5.00 upon all members of the local Academy. It is hoped that by this means, interest in the meeting will be augmented and certainly if men contribute even a small amount to this end, they will feel more inclined to attend the sessions and by every means in their power to try to make the meeting a success. The committee confidently expects that their appeal will not be disregarded and that Cleveland will demonstrate the fact that her hospitality is most generous and that the State Society has made no mistake in selecting this city as a meeting place.

## Department of Therapeutics.

Conducted by J. B. McGEE, M. D.

**Diabetes:** F. Forchheimer, in the *American Journal of the Medical Sciences*, considers the treatment of diabetes from the medicinal side. Opium is now the only drug accepted by all writers on the subject as doing good, not any of its alkaloids acting as beneficially as the whole drug. The objections to opium are many. Giving it to a patient for three weeks may be followed by the opium habit: he has seen this in two diabetic physicians. Many patients cannot take it, and after all its beneficial effects are limited; so that, as a rule, it should not be prescribed in every case, but only in exceptional instances, either in the rare nervous cases, or when everything else has failed. For ordinary use he prefers arsenic, and his experience has been greatest with it. It should be given as liquor potassii arsenitis in ascending doses, until mild toxic effects are produced; then the dosage should be gradually reduced. In order to get the best results from arsenic, mild toxic effects must be produced. This drug is especially indicated in the severe cases, but should always be combined with dieting. In all the cases he has treated, repeated courses have not lost their effect upon the glycosuria and diminution of acetone bodies. Hexamethylenamin he has found valuable and has employed it for five years, giving it in five grain doses three or four times a day, and in one case continually for four months without any bad effects. With hexamethylenamin glycosuria is improved and tolerance is increased. He does not recommend it for severe cases without proper dieting. It is difficult to say how it produces its results. Belladonna, formerly condemned, has recently been recommended by Rudisch. In so far as the results were concerned, they seemed the same whether atropin methylbromid, as advised by Rudisch, atropin sulphate or belladonna itself was used. He believes the tincture of belladonna the best tolerated. His results agree fully with those of Rudisch. In a large number of cases glycosuria and with it acetone bodies have diminished or disappeared, and carbohydrate tolerance was increased. Indeed, some patients were not dieting when taking this remedy, but when it was discontinued the sugar did not reappear for some time. In several severe cases it did no good. It seems perfectly adapted to milder cases, so that in one instance, without dieting, there has been absence of sugar for over a year. As to diabetic coma, it would seem that the solution of the therapeutic problem should be easy: add alkalies to control the acid. And yet simple as is the ratiocination, this treatment has remained singularly ineffective. He has never seen a patient recover from true diabetic coma when once thoroughly established, although he has seen diabetics recover from coma due to other causes. On the other hand when the first symptoms of coma are recognized, the therapeutic results are fairly good with the sodium treatment. There are two ways to avoid coma in treating diabetics for sugar tolerance, the first by taking into consideration the results of urinalysis, and the second by giving sodium bicarbonate during the testing period as first recommended by von Noorden.

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**Skin Diseases:** In the *Medical Record* for Jan. 28, L. Duncan Buckley calls attention to the value of a very restricted diet (rice) in acute inflammatory diseases of the skin. Advancing science shows more and more that many diseases, including certain of the skin, are dependent upon conditions of the vascular and nervous systems, and these also are the result of deranged action of the chylipoietic organs which are further greatly influenced by the character of the food and drink taken. Thus it is that dietetics, in the broadest sense, is of really great influence in regard to the production of many chronic and



acute diseases both of the skin and other organs. He here calls attention to a special mode of diet which he has employed and found of such inestimable value in certain acute inflammatory conditions of the skin that he desires to recommend it most strongly in suitable cases. He has given it to a very considerable number of patients with acute inflammatory dermatoses; mainly in private practice during the past five years, with the most gratifying effect, so that he can now almost promise that in a very short time there shall be the greatest relief. He is positive that the results he has secured in many of the cases far exceed anything he has previously obtained without it, and especially so in his own personal case. In cases of acute eczema, and in several cases of very acute general lichen planus and dermatitis herpetiformis, the results have been very striking, and also in acute urticaria; some cases of rapidly developing psoriasis, with much congestion have been most favorably affected by this plan of diet. The diet is absolutely nothing but rice, bread, butter and water, and after a few days the relief is generally quite marked. Rice, white bread and butter were chosen as containing the smallest amount of nitrogen, while affording sufficient calories, and ordinary water, hot or cold, was freely supplied for the necessities of the system. Milk was avoided on account of its large protein element, and also coffee, tea and chocolate as having xanthin products. As to the preparation of the rice, which has much to do with the success of the treatment, it should be thoroughly cooked with water and not with milk, and generally it is better to have it dried out somewhat by leaving it uncovered on the fire for a while. The rice is freshly prepared with butter and salt, and eaten slowly with a fork, with perfect mastication. Water is to be taken freely, but not to wash down the food in the mouth. During the active rice diet he avoids milk, but later it may be given. His common direction is to continue this rice diet for from three to five days, more commonly the latter. It is well to return then to a mixed diet rather gradually, and he directs that at first a moderate meal be taken at noon for a few days with the rice morning and night. Then a light breakfast with the rice, and continue the rice diet at night for a time longer. It is well to keep the evening meal light for a while as sleep is better and less disturbed by itching. While this seems a relatively simple matter to present, he believes it will prove of great value in practice.

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**Sedatives:** William F. Waugh, in the *New York Medical Journal* for Jan. 28, writes upon sedatives as tonics. He states that the indurated views of very many physicians is that sedatives are debilitating agents, and their administration is always attended by a reduction of the patient's strength and power of resisting disease. Men in good standing assert that they do not use drugs except tonics, the inference being that, when ill, a person necessarily requires strengthening treatment. While this is true it is only so in a general sense, as disease is always complex. Bonney reports a fact illustrating this principle: women attending the gynecological clinics nearly always complain of "weakness." Men with similar complaints respond favorably to strychnin, and acid, and a bitter stomachic. The result of treatment along this line in gynecological cases is invariably disappointing, the patient does not improve or becomes distinctly worse, but when the bromids are substituted, the patient invariably declares she feels much stronger. He attributes the sense of weakness here to excessive irritability of the nervous system, the steadying of which by the bromids immediately produces a sense of "feeling stronger." Waugh has frequently made the same observation, but in most cases the relief followed much smaller doses of bromid than are usually employed. Five grains of sodium bromid repeated hourly for three doses, but no more, and not that if relief comes with two doses or one, give finer results than excessive bromism.

**Diphtheria Carriers:** In the *Archives for Internal Medicine* for January, Henry Page states that a carrier of diphtheria bacilli may have practically no protection in his blood serum against the toxin that must constantly be elaborated in his throat, and as this toxin is a nerve poison, steps to prevent serious nerve lesions are imperative. His conclusions are that: (1) A sanitary survey should be made after every diphtheritic outbreak to eliminate carriers, whether they be human or animal. (2) The human carrier is the most dangerous. (3) By animal inoculation a distinction should be made between the virulent and the "morphological" carrier. (4) Four negative daily cultures are necessary before quarantine is raised. (5) Treatment of carriers has heretofore proved useless. Local measures while necessary, fail to influence the virulence or duration of the bacilli. Antitoxin has no influence on the bacillus in a carrier. (6) A pure culture of *Staphylococcus pyogenes aureus* sprayed in throats has in seven cases, now reported, destroyed the Klebs Loeffler bacilli in carriers, in 48 to 72 hours. (7) This method is harmless and should be used in all cases of carriers. (8) This method has been found useful immediately after convalescence from an acute attack. (9) It is probable that its use during an acute attack of diphtheria could be successful. (10) As yet it is inadvisable to attempt its use in any save mild acute cases.

Attention is called to a doubt as to the safety of inoculating throats with virulent *Staphylococcus pyogenes aureus*, but since this report Musgrave, of Manila, reports that it has been used by the members of the Philippine Bureau of Science without any disagreeable results.

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**Adrenalin:** In the *Therapeutic Gazette* for January, T. Mellor Tyson and Henry D. Jump report results of treatment of ascites by the intraperitoneal injection of adrenalin. Fleisher and Loeb have reported the results of their experiments on the influence of adrenalin in absorption of fluid from the peritoneal cavity. In conclusion they state that adrenalin injected intraperitoneally increases the rapidity of absorption of fluid from the peritoneal cavity, independently of whether the fluid to be absorbed is hypotonic or hypertonic, or is approximately isotonic with the blood serum. The intravenous injection of adrenalin also increases the absorption of fluid, but not so markedly as does the intraperitoneal injection. They also stated that the increase of absorption is not due to increased diuresis, but that adrenalin causes a temporary increase of the osmotic pressure of the blood, that this tends to be maintained under certain conditions and that they have reason to believe that this increase in osmotic pressure of the blood is the main factor in increasing the absorption. Tyson and Jump used this method in a case of ascites due to chronic parenchymatous nephritis with moderate regurgitation at the mitral valve. He had already been tapped three times and the intraperitoneal injections of adrenalin were used; nine injections were given varying from 0.5 c.c. to 2 c.c. within about two weeks. After the last of these and in two weeks from the first injection, the ascites had disappeared, and the patient's general condition was good. Since then his improvement has been progressive and on account of this the question presents itself, whether the adrenalin had some influence on his kidneys in addition to its influence upon the absorptive power of the peritoneum. The probability is that he has established a kidney sufficiency which is preventing the formation of ascites and is responsible for his general improvement. In another case of ascites due to abdominal carcinoma, no improvement followed.

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**Hexamethylenamin:** In *Merck's Archives* for January (*Progressive Medicine*) H. R. M. Landis discusses the antiseptic value of hexamethylenamin, believing that it is destined to play a



very important rôle in the treatment and prophylaxis of bowel infections and particularly in gallbladder disease; due to gallstones complicated with *Bacillus typhosus* in enteric fever, in posttyphoidal states, in cerebrospinal infections, in middle ear diseases and gonorrheal and pneumococcic arthritis. He states that the administration of the drug in these conditions is scientific and sound therapeutics and that it certainly seems advisable to administer this drug in addition to whatever other treatment is inaugurated. He thinks it should prove of value in preoperative states on the biliary passages due to infections and in mastoid conditions since it tends to render these structures sterile and thereby prevent post-operative complications. The dose varies from 4 to 15 grains: the average dose of  $7\frac{1}{2}$  grains is probably efficient in most cases, the frequency of its administration being determined by the condition. It is, however, unwise to give the drug in acute nephritis except in smaller doses, as it has a slight irritating effect on the kidneys and may cause a slight hematuria or hemoglobinuria. The mode of excretion of hexamethylenamin plays an important part in the estimation of its value as an antiseptic. Sollman has shown that the greatest part is excreted unchanged in the urine, but when the urine is not voided too frequently, the retention of the urine in the bladder decomposes the drug and free formaldehyd is liberated.

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**Lupus Vulgaris:** The *New York Medical Journal* for January 21 comments on Pfannenstill's method of treating laryngeal tuberculosis with ozone inhalations in conjunction with the internal administration of sodium iodid. Pfannenstill has since obtained good results in lupus vulgaris by substituting local applications of hydrogen dioxid for the ozone inhalations. Strandberg reports from the Finsen Institute that the latter method has been in use there in the treatment of lupus vulgaris of the nose and the nasal cavities since August, 1910. Previous methods had not proved very satisfactory but Strandberg reports 13 cases treated by Pfannenstill's method, and all successfully, though some were of several years' standing and had proved refractory to ordinary methods. The time required to bring about a cure varied: in one case, with extensive ulceration of the septum and inferior turbinate, healing was complete in 16 days, while another patient with far less extensive lesion was cured only after three months. The details of the treatment are as follows: sodium iodid, three grams daily, divided into six doses is given. The nasal cavities are packed with sterile gauze saturated with acidulated two percent. hydrogen dioxid: in order to expose the mucous membrane to the action of the oxygen constantly, the patients are instructed to instill hydrogen dioxid into the nose through a pipette until they feel the fluid trickling down into the pharynx; this is repeated several times every hour. It is noteworthy that the Wassermann reaction was negative in all cases but one, and in that case anti-syphilitic treatment had no effect on the lesions in the nose, while they healed rapidly under the combined iodid and hydrogen dioxid treatment. While it is too early to judge of the lasting benefits of this treatment it deserves a trial.

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**Indicanuria:** In *American Medicine* for January, Henry H. Harrower treats of indican from the standpoint of the general practitioner. It is practically invariably associated with three important factors: (1) Rapid and excessive overeating of a diet overrich in protein. (2) A lack of muscular tone in both the intestinal and abdominal walls. (3) Disturbances in the normal secretory functions of the intestinal glands, due in all probability to the toxemia caused by the motor insufficiency. Its treatment per se is no sinecure, it is far more than the simple unloading of the bowels, and the removing of the putri-

fyng material therefrom. Indicanuria is a habit, and the system has to be weaned from it. The first thing is to judiciously use the purge, followed by dietary regulation with a decrease in the protein intake (especially the animal proteins) and an increase in the time taken to chew the food. Metchnikoff's bacterial therapy has proved itself of some value, and soured milk is much better than tablets of the germs. Colonic irrigations are splendid and should be carried out daily whenever possible in every case for a week or longer. Another very valuable measure is the high oil injection. From two to six ounces of cotton seed oil or olive oil may be injected as high as possible and retained all night. He has found the addition of one or two percent ichthyol to the oil valuable. The relief of ptosis of the abdominal walls and viscera is another important essential. Frequently when this is borne in mind persistent and intractable indicanuria disappears altogether, to stay away as long as the ptosis is relieved. He adds that preserved urines do not always give good indican tests. For this purpose, formalin at least should not be used. Patients using urotropin or hexamethylenamin and iodine compounds should not take them for several days prior to the test.

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**Diabetes:** In the *Therapeutic Gazette* for February, E. J. G. Beardsley reports as to the value of taka-diastase for diabetes mellitus. As to the medicinal treatment of this disease we find a very large percentage of the pharmacopoeial preparations have been recommended, as well as scores of the unofficial. In a number of cases, at the suggestion of Hobart A. Hare, taka-diastase was given in the powdered form. He believes it is fair to state as the results of its use, that the administration of taka-diastase to a diabetic has a tendency to alleviate all the symptoms; it decreases the amount of sugar for a time, but this finding is not constant, while it is undoubtedly true that even if the sugar increases during the administration of the drug, the symptoms are relieved. The drug has no untoward effects, although it was noted by the families of two patients that even when the symptoms were improving, both patients seemed more depressed for a few days following its first administration, but this symptom soon passed away. The drug must be continued to keep up its good effects, but the dose can be reduced or increased from time to time as found necessary.

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## Department of Pharmacy.

Conducted by H. V. Arny, Ph. G., Ph. D.

**Disguise for Copaiba:** According to the *Pharmaceutical Journal* (through *Druggists Circular*, 55, 63) two drams of tincture of benzoin to an eight ounce alkaline mixture of copaiba completely masks the odor and taste of that oleoresin.

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**Thyroid Extract:** An important contribution to this perplexing subject is an article by S. P. Beebe (*American Journal of Pharmacy*, 83, 56). After discussing the literature and particularly the various suggested methods of manufacture, he reports the following conclusions drawn from his own experience.

1. All thyroid proteids contain iodine, the conclusions of former investigations that some such proteids are iodine-free being drawn from faulty methods of isolating the iodine.
2. The best method of extracting the iodine is by Rigg's modification of the Baumann method (*Journal American Chemical Society*, 31, pp. 710; 32, 692 and *Zeitschrift f. Physiologische Chemie*, 22, 1).
3. Different types of thyroid extracts show startling variations in



iodin content; some commercial extracts being very poor due to the fact that slaughter houses prefer selling goitrous glands poor in iodine, since such are always larger than normal glands.

4. Some of the thyroid proteids are richer in iodine than are others, while some (especially those which are autolyzed) are toxic.

5. The best thyroid preparation is a sheep thyroglobulin prepared by macerating normal glands with faintly alkaline normal saline solution and precipitating the filtered fluid with acetic acid, heating the mixture to 44° C. for ten minutes.

6. The iodine content of fresh glands from different species of animals vary markedly, the average of nine human glands being 3.384 milligrams iodine in each gram of purified proteid.

7. The dosage of thyroid preparations should be based on the above figure, a 1% tablet meaning a two grain tablet in which sugar of milk is the diluent, containing 1% (1-50 grain) of the purified proteid (3.384 mg. to 1 gm.). If the proteid used is stronger or weaker than this standard, the proportionally less or greater amount of proteid should be used.

8. For various types of goiter 1% and 2% tablets represent a sufficient dosage; the 5% tablet being reserved for myxedema cretinism, etc.

9. In some cases it is advisable to administer the proteid hypodermically, in which case a standardized solution is prepared and is preserved in ampoules.

**Belladonna** C. E. Vanderkleed (*Bulletin of American Pharmaceutical Association*, 6, 17) reports that 11 bales of belladonna leaves imported by his firm were rejected because of an unusual and clumsy adulterant; 27% of belladonna stems. Assay showed that the separated leaves contained 0.298% mydriatic alkaloids while the stems (contrary to the general idea that they were inert) contained 0.175% alkaloids.

**Physiological Assays:** The Committee on Physiological Assay of the Philadelphia Branch of the American Pharmaceutical Association (*Bulletin A. Ph. A.*, 6, 22) makes the following report on assays for the next Pharmacopoeia:

The *vermifuges* might be standardized by Brunning's method; determining the vermifugal effect upon intestinal worms obtained from the alimentary tract of dogs and cats. This plan is merely suggested but not recommended.

*Cannabis* assays have been found so inaccurate that none can be recommended by the committee. The same is true of *ergot*, the cock's comb test having proved unreliable. Moreover, there is hope that for this drug a chemical assay will soon be forthcoming.

For *thyroid preparations* the (chemical) iodine assay is so satisfactory, that a physiological assay seems unnecessary. This is also true of *veratrum*, although the committee sounds the warning that total alkaloidal content of this drug is no criterion of its physiological activity and that some means must be devised to separate the active alkaloids (notably protoveratrin) from those that are inert.

In like manner, total alkaloidal content of *aconite* is not reliable because of the presence of inactive alkaloids, so the committee recommends a physiological assay based on the amount necessary to kill; viz: not less than 0.4 milligram nor more than 0.5 milligram of drug for each gram of body weight should be required to kill a guinea pig in 12 hours.

For the *digitalis group* (apocynum, convallaria, digitalis, squill and strophanthus) the committee recommends assay similar to that suggested for aconite; digitalis, specifically, should be of such strength that not

less than 0.35 milligram nor more than 0.40 milligram per gram of body weight of animal should kill a guinea pig in 12 hours.

The *suprarenal gland* assay recommended is that one gram of the gland injected intravenously into a dog should produce the same rise in blood pressure as that produced by a dose of one milligram of pure active principle on the same dog.

The report contained details of the several assays and is signed by the members of the committee, Drs. T. S. Githens, C. A. Hofer, John C. Scott and H. C. Wood, Jr.

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## Academy of Medicine of Cleveland.

### MEDICO-PHARMACEUTICAL SECTION.

The fourth meeting was held at the Cleveland Medical Library Friday, January 27, 1911, L. C. Hopp in the chair.

The report of the Committee appointed at the former meeting to consider the advisability of using saccharin as a sweetening agent in pharmaceuticals, was read by the Chairman of the Committee, N. Rosewater. Four of the five members of the Committee were of the opinion that the use of saccharin as a sweetener was unobjectionable, unless deception was practised. The Chairman reported that he had personally taken 60 grains of saccharin in divided doses during one evening and found absolutely no deleterious effects. It was voted that in view of the expected report of the Remsen Referee Board on Saccharin, the Section would take no action on the report before it, other than receiving it and discharging the Committee with thanks for their work.

The program was as follows:

1. Ointments, L. C. Hopp. (Appearing in full on page 208).
2. Ointments and their Therapeutic Use, W. T. Corlett. (Appearing in full on page 202).

J. Feil, in the discussion, thought that the weaker mercurial ointment should be retained in the Pharmacopoeia as there was a much larger demand for it than for the 50% preparation, the laity using the former for parasitic diseases and for use in animals. Phenol did not mix well with petrolatum and if a high percentage were used it was liable to separate, a weak ointment should therefore be used.

M. G. Tielke thought it desirable to retain the weaker mercurial ointment because the possibilities for harm were less when it was used by the laity who desired the local and not the specific effect. Phenol ointment was also much used by the public and the maintenance of the present formula was less dangerous than if lanolin were used in the base, as the absorption would be less if petrolatum alone were used; if anything were to be added to the base spermaceti would probably be quite safe and satisfactory. A 3% phenol ointment would be perfectly stable if good petrolatum and pure phenol, not that liquified by the addition of water, were used.

N. Rosewater said that with ordinary petrolatum only about 2% of phenol would remain in solution. If the phenol were good and free from water and pure petrolatum were used the 3% ointment would be quite permanent. He thought, however, that a 1% ointment was the safest and should be specified in the Pharmacopoeia.

J. B. McGee also thought that the Pharmacopoeia should specify a 1% phenol ointment to avoid accidents, a number of cases of gangrene from the use of even weak phenol preparations having been reported. He thought very favorably of the oleate of mercury for inunction and often used it in preference to the 50% ointment.

G. Morrill said that he had seen some very serious results from



the use of 3% phenol ointment, even gangrene resulting in some instances.

L. C. Hopp said that the use of a petrolatum and lanolin base for phenol ointment would obviate any danger of separation of the phenol due to the presence of water in the phenol.

H. V. Army said that it would be absurd to alter the Pharmacopoeia for the sake of slovenly druggists. The Pharmacopoeia provided phenol and liquified phenol, it also directed that phenol and not liquified phenol be used in the preparation of phenol ointment. A solution of phenol in oil was much used in the South and might prove a useful addition to the Pharmacopoeia; it, of course, would combine well with petrolatum to form an ointment.

W. T. Corlett said that a 3% phenol ointment was as weak as one could use and still get antiseptic effects. He was not particularly impressed with its value but if it were to be retained it should be at least of this strength. The oleate of mercury was theoretically ideal for producing a systemic effect but practically, so far as he could ascertain, it was decidedly irritant and could not be tolerated by many skins.

C. C. Benfield, W. T. Hanke, M. Metzenbaum and R. K. Updegraff also discussed the papers.

It was voted that the Section recommend that the chapter on cerates in the Pharmacopoeia be combined with that on ointments. It was also voted to recommend that both ointments of the oxides of mercury be dropped from the next Pharmacopoeia and that the two strengths of mercurial ointment be retained.

The following officers were elected for 1911: Chairman, L. C. Hopp; Vice-Chairman, M. G. Tielke; Secretary, J. B. McGee; Councilor, N. Rosewater.

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## THE OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION.

The fiftieth regular meeting was held at the Cleveland Medical Library, Thursday, February 2, 1911, S. H. Large in the chair.

The program was as follows:

1. The Drainage and Ventilation of the Nose and Accessory Sinuses, William L. Ballenger, Chicago, Ill.

The speaker gave an informal talk with blackboard demonstrations. He stated that the greatest cause of inflammation in the nose was the blocking of drainage and ventilation. The obstruction did not have to be absolute, in fact the space was so small that what would be considered a slight amount of swelling in the normal nose might completely occlude one already the seat of some obstruction. Among the causes mentioned that impaired drainage were deviation of the septum, high up, crowding the middle turbinal bone against the outer wall of the nose where the drainage canals came down; enlargement of the middle turbinal bone inclosing a large cell or cyst; polypoid enlargement of the mucous membrane of the middle turbinal bone; enlargement of the bulla ethmoidalis; and enlarged cells in the uncinat process. Retention of secretion with decomposition, and stagnant air with lowered vitality led to chronic inflammation.

2. Meningeal and Cerebral Complications of Suppurative Ethmoiditis. Report of Seven Cases and Four Autopsies, J. A. Stucky, Lexington, Ky. (Appearing in full on page 210).

J. E. Cogan, in the discussion, asked what the speaker's experience had been with vaccine treatment in suppurative conditions of the nose.

J. M. Ingersoll asked whether the operations that had been performed

on the nose in the cases reported had had any relation to the subsequent meningeal infection.

J. W. Murphy of Cincinnati thought there was not much danger of injuring the cribriform plate in operating on the middle turbinal or ethmoid cells, although it was well to keep it in mind.

W. L. Ballenger, in conclusion, stated that he had had some favorable results with serum treatment in chronic inflammation of the sinuses. In 800 cases operated upon he had had only one death, in this case he thought that meningitis was already present at the time of the operation, as the spinal fluid was opaque eight hours afterward—certainly too short a time to have been due to the operation. He had had one death after a Killian operation on the frontal sinus.

### 3. Ophthalmia Neonatorum, J. E. Brown, Colubus, Ohio.

Stress was laid upon the importance of this condition as a causative factor in many patients in institutions for the blind. He also mentioned the fact that a world-wide crusade was on foot to eliminate the disastrous results of this preventable disease.

In the afternoon an eye, ear, nose and throat clinic was held at St. Vincent's Hospital. C. C. Stuart conducted the eye clinic, W. L. Ballenger of Chicago performed various operations on the nose and throat, and S. H. Large demonstrated the bronchoscope. The clinics were attended by 22 out-of-town specialists.

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## CLINICAL AND PATHOLOGICAL SECTION.

The seventy-fifth regular meeting was held at the Cleveland Medical Library Friday, February 3, 1911, R. K. Updegraff in the chair.

C. L. Cummer presented a patient suffering from intermittent closure of the cerebral arteries. The man, aged 62, had been having about six attacks a day of partial paralysis of the right side, either of the arm, leg or the face. These attacks were transitory and accompanied by anesthesia of the affected part. He gave no history of lues but had used alcohol and a large quantity of tobacco. There was marked arteriosclerosis with blood pressure about 212 mm. Under treatment with vasodilators the attacks disappeared and had not recurred in a period of one year, although the blood pressure remained about 200 mm.

W. G. Stern showed a boy who had received a compound fracture of the humerus just above the elbow. There had been a severe inflammatory reaction which subsided after several injections of a staphylococcus vaccine, but there was failure of union and marked absorption of the bone at the fracture. The wound was finally thoroughly cleaned out and the dead space filled with a von Mosetig bone plug, consisting of iodoform, oil of sesame and oil of spermaceti. The result was very satisfactory and the soft tissues were rapidly closing over the plug.

P. A. Jacobs described the technic of the vaccine treatment in this case. In order to save time a stock vaccine had been first used, but later an autogenous one was prepared and employed.

W. G. Stern also showed a patient who had sustained a crush of the foot and ankle by being caught between an elevator and the floor. The attending physician could discover no fracture, and in a day or so the patient walked around and wished to return to work although the foot and ankle were enormously swollen. On the third day the patient walked four miles unassisted and at this time, although no crepitus or preternatural mobility could be made out, a widely diffused ecchymosis of the foot and ankle was found in addition to a marked and sharply defined bruising of the skin; there was also severe pain upon deep pressure over the os calcis and the lower end of the tibia. A radiograph showed fractures of the os calcis the malleolus of the tibia and the fifth metatarsal bone. On the next day the patient again walked four miles making eight miles in all.



R. K. Updegraff showed specimens from an autopsy on a case of acute alcoholism, in which wood alcohol had been drunk. The stomach, kidney and heart showed multiple hemorrhages.

C. C. Patton showed the following pathological specimens: 1. Hour-glass stomach. 2. Horseshoe kidney. 3. Primary carcinoma of the stomach with metastases in the liver. 4. Primary tuberculosis of the liver. 5. Rupture of an aortic valve and infarct in the spleen. 6. Organs from a case of leukemia showing multiple hemorrhages. 7. Miliary tuberculosis of the spleen. These cases were discussed by W. G. Stern and P. A. Jacobs.

W. T. Corlett showed a patient who had been treated for syphilis with arsenobenzol. This was the first case in which he had used this treatment. The patient when first seen showed numerous macules and tubercles which suggested a malignant type of the disease: the former faded quickly and the second in about three weeks after he was given 0.4 gm. of the neutral emulsion in the infrascapular region. Subsequently the glands in the neck suppurated. After five weeks the lesions had almost disappeared but a week or two later a new, very characteristic eruption appeared. Three weeks ago the second dose of "606" in alkaline solution was given, apparently with favorable effect. The Wassermann reaction which had been positive before the first injection subsequently became negative and still later returned to positive. The speaker said he would not give arsenobenzol if a patient were doing well under mercury. If a rapid effect was desired or if the routine treatment was unsatisfactory then arsenobenzol was useful. So far as his own observations went he had seen no case completely cured by it.

W. E. Sampliner urged conservatism in the employment of arsenobenzol until more had been learned concerning its action. It was certainly not as surely curative as was first supposed and its dangers were not, as yet, thoroughly understood. Great care should, therefore, be exercised by the general practitioner in resorting to its use.

W. C. Stoner also urged that care be exercised in its use. He pointed out that it was already on sale in this city and that it was being employed in ambulant cases in which its effects could not be properly watched.

The program was as follows:

1. The Borderland between Sprains, Fractures, and Periosteal Inflammation after Trauma, W. G. Stern.

A sprain was an overstretching or tearing of the soft structures which bound together the component bones of a joint: there was no open wound or injury to the bone or periosteum. A fracture was the solution of the continuity of a bone due to trauma: it was not necessarily a "break" in the accepted lay sense of the word. Fractures about or into joints were usually accompanied by an injury to the soft parts.

A considerable percentage of fractures, for one reason or another, did not present all the typical symptoms and might easily be mistaken for sprains or contusions. The symptoms which might be wanting in any given case were spontaneous pain, deformity, preternatural mobility, crepitus and loss of function. The three constant signs of fractures were brawny swelling, pain on deep pressure localized over the area of the fracture and bloody discoloration. The presence of these three constant symptoms after trauma should lead to a tentative diagnosis of fracture which should be further substantiated by the use of the x-rays or an anesthetic. The skiagraph should be carefully taken from two different planes if possible, and needed an expert for correct interpretation. Good function was not necessarily dependent upon a normal appearance of the fragments as to anatomical position, etc., after reduction.

Some sprains might present signs of fracture which could be misleading for the time being. Periostitis resulting from trauma or already present when the trauma took place might at times be mistaken for frac-

ture. The subject was illustrated by the exhibition of two clinical cases and by a number of radiographs.

2. Fractures of the Wrist with Stereopticon Exhibition of Radiographs, W. I. LeFevre.

A large number of radiographs were shown illustrating the different stages of development of the bones of the wrist at various ages and showing that this might vary in different individuals of the same age. Particular attention was devoted to Colles' fracture and the results of a number of these were shown. The fact that a fracture of the styloid process was a frequent occurrence in this fracture was demonstrated. Plates showing fractures of the lower end of the radius, sustained in cranking automobiles, were also exhibited. These differed from the typical Colles' fracture and showed very little deformity: the results were, therefore, usually good.

3. Roentgen Ray Diagnosis in Bone Disease, W. C. Hill.

Skiagraphs showing arthritis, exostosis, bone cyst, sarcoma, carcinoma, osteomyelitis, syphilis, and tuberculosis, were exhibited by means of the stereopticon and the differentiating characteristics of these diseases, as seen on the x-ray plate, were pointed out. It was demonstrated that skiagraphs of different diseases of bone presented different types of shadows sufficiently characteristic in structural detail and comparative density to enable the roentgenologist to make a diagnosis, not only earlier than was formerly possible, but in many cases in which the diagnosis, before the days of the x-ray, could be made only by exploratory operation and microscopical examination.

C. A. Hamann, in the discussion, said that very much valuable information concerning injuries and diseases of the bones had been gained since the use of the x-ray. Its aid was invaluable in many cases in making a diagnosis. He showed several specimens of exostoses of bones and part of a skeleton in which the bones of the left, lower extremity were much smaller than those of the right, due to infantile paralysis. He thought that dislocation of the interarticular fibrocartilage from the lower end of the ulna was much more frequent in Colles' fracture than fracture of the styloid process and was a cause of many of the deformed wrists after this form of fracture.

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## EXPERIMENTAL MEDICINE SECTION.

The fifty-fourth regular meeting was held at the Cleveland Medical Library Friday, February 10, R. G. Perkins in the chair.

The program was as follows:

1. The Possible Relation of the Liver to Diabetes, J. J. R. McLeod. (To appear in full in the Journal).

G. N. Stewart raised the question whether the uniformity of the glycogen content of all parts of the liver, was not, after all, an expression of the uniformity of the sugar content of the blood, which fed all parts of the liver. Just as when sugar-containing blood came in contact with the kidney cells they took up a certain portion of that sugar.

C. F. Hoover asked whether the operative procedure itself might not account for the glycosuria occurring in these animals with an Eck fistula. In syphilitic narrowing of the portal vein or in suppurative pylephlebitis there might be almost a complete obstruction of the portal vein and yet there might be no ascites and no sugar in the urine. In amebic abscess there might also be an almost complete destruction of the liver and yet no ascites of glycosuria.

D. Marine asked whether any relationship existed between the amount of sugar retained in the body and the amount of liver remaining in these experiments. Also whether there was any difference in the ability of



the body to store glycogen when the liver was quantitatively reduced by disease. Sclerosis of the liver was often found in Graves' disease and in this condition there was said to be a lowered tolerance for sugar, supposed to be due to the thyroid toxin.

J. J. R. McLeod, in conclusion, said that the deposition of sugar in the liver was probably not controlled by the amount of sugar in the portal vein but by some other changes in the systemic blood. It had been said that when carbohydrate was being absorbed from the intestine the deposition of it in the liver as glycogen was not uniform; the imperfect mixing of the blood from the splenic and mesenteric veins causing more sugar to go to the right than to the left side of the liver; an investigation of glycogen deposition in the liver during absorption of sugar did not confirm this belief. When glycogen was broken down at an excessive rate its distribution was no longer uniform in all parts of the liver. Ether, for example, produced a hyperglycogenolysis which occurred at different rates in different parts of the liver. He objected to the view that phloridzin glycosuria was entirely due to renal leakage of dextrose. Such leakage probably occurred early in the condition but there was also marked hepatic glycogenolysis which, he believed, was independent of the kidney leakage. In a gradually developing liver disease, or in any disturbance with its circulation which would interfere with its glycogenic function, the muscles might take on the function of storing glycogen and thus account for the absence of hyperglycemia. In a case of hepatic cirrhosis there might be no alimentary glycosuria for dextrose although it might exist for levulose. In this disease, von Noorden had pointed out that an inability to retain levulose was an important clinical sign.

## 2. Recent Experimental Work on the "Fusion" of Nerves and its Practical Bearing on Infantile Paralysis. Report of a Case of Infantile Paralysis Treated by this Method. H. O. Feiss.

The speaker presented a preliminary report of some of his work upon "Nerve fusion." This was a problem which had as its object the distortion of a nerve pattern, by this, meaning an alteration in the arrangement of the fibers of a nerve as seen in cross-section, thus affording these fibers the opportunity of reaching different peripheral distributions. The possibility of such an achievement was based upon our knowledge of the appearance of the scar which was ordinarily seen after division of a nerve when the two stumps had been immediately approximated. Such a scar showed a large mass of new tissue consisting of proliferated cells, probably from the old sheaths of Schwann. As the regenerating fibers entered this mass of new tissue they were sent into all directions on account of the indiscriminate arrangement of these cells. This meant that some of the fibers would cross. If the scar were too short, this peculiar arrangement of the fibers became lost, for they rearranged themselves very quickly into parallel lines and entered the same tracts in the peripheral stump which they had occupied in the first place.

The idea of nerve fusion was to interpose sufficient scar in the nerve to prevent the formation of the old nerve pattern. The method of obtaining the proper scar had been by using two ligatures of catgut placed a short distance apart. By the time the catgut was absorbed, a good scar had formed which might serve the purpose desired. The experiments had been done on the popliteals of full grown dogs. The tests had shown good regeneration but the tests for the crossing of the fibers had not as yet offered sufficient evidence to show that such crossing was permanently accomplished.

Bearing of this work in infantile paralysis, the speaker gave an account of a human case in which five years after an attack of infantile paralysis, there persisted an almost complete paralysis of the foot, the only motions which were left being dorsal flexion of the ankle and flexion and extension of the toes. A nerve fusion was done on the

popliteals and the condition  $4\frac{1}{2}$  months afterward showed a slight amount of motion returning in all directions in the ankle and toes.

G. Bauman said that some five years ago Harvey Cushing had done some work along these lines. Having heard of Cushing's experiments he had performed a somewhat similar procedure on a boy, aged 13, who had been hopelessly paralyzed from infancy. He cut and sutured the external peroneal nerve and evidently got good union although there was absolutely no change in the muscular innervation afterwards. It seemed to him one ran a great chance of having worse results from such an operation than previously existed, especially if infection occurred. Surgery of the nerves in infantile paralysis, however, seemed more rational than tendon operations in the same cases.

W. G. Stern had also tried a similar operation following the lead of Spiller and Frazier of Philadelphia, but he had obtained no improvement over the original condition. He thought that some of the good results in the case reported might be due to the forcible overcorrection of the deformity which might permit the overstretched muscles to regain their tonus somewhat. Since the nerves in dogs did not always regenerate after section he thought this operation in human beings would be rather a questionable procedure since not only were human nerves less resistant to injury than a dog's nerves, but in these cases of infantile paralysis they were already diseased.

3. Studies on Endemic Goiter (Cancer) in Brook Trout and their Practical Bearing on General Medicine. David Marine and C. H. Lenhart.

This investigation was carried out in the summers of 1909 and 1910, in conjunction with the Pennsylvania Fish Commission, at its hatchery east of Scranton. The hatchery consisted of a series of 35 pairs of small ponds arranged down the course of a small brook. In each pond there were from 500 to 2000 fish. The fish were fed principally on macerated liver and were kept for a period of three years.

It was pointed out that in the normal trout the thyroid consisted of an unencapsulated gland located at the base of the pharynx and from the first to the third gill arches. Particular emphasis was laid on the fact that the gland was not encapsulated so that the thyroid, in growing, extended along the paths of least resistance. In a hyperplasia the gland might invade muscle and even bone. The young fish showed the most active hyperplasia and in the course of three years this tended to become less of itself. The first evidence of overgrowth was found at the second month of extra-oval life and at the fourth month invasion of muscle, cartilage and bone was to be found.

The lower part of the hatchery was also supplied by a second larger stream of water and the amount and occurrence of goiter was much less here than in the upper ponds. Evidently the amount of fresh water had something to do with the condition.

Inoculation experiments of the goitrous tissue into the bodies of normal fish were invariably unsuccessful: thus tending to cast a doubt on the carcinomatous theory of fish goiter. Moreover, fish transferred to a neighboring trout stream, where they were not crowded and where they found their own food, within 40 days showed a return of their goiters to a colloid condition, i. e., to as near a normal condition as possible: hence feeding appeared to have something to do with the condition and the thyroid hyperplasia could not be carcinomatous or there would not have been a return to the colloid state.

To further prove their contention a series of the most emaciated fish were transferred to the neighboring stream, where they lived under normal conditions while a series of controls were kept in a hatchery pond. The former fish showed a rapid return of their thyroid tissue to the colloid state and they gained rapidly in weight: controls remained as before. Twelve fish from the stream just above the first ponds, i. e.,



where they were not crowded and where they found their own food, showed normal thyroids. A series of fish two years old, showing small visible goiters, were put in a pond, given less liver and a small amount of iodine every day. In 40 days there was a complete involution of their thyroid tissue. Twelve of the worst emaciated fish were put in a trough and given a like treatment with iodine and a little liver daily. Even these most extreme cases reacted rapidly and gained greatly in weight, and there was a complete involution of the thyroid.

These experiments tended to show that the thyroid hyperplasia in fish was not carcinomatous for it decreased of itself in three years, it reacted rapidly to small doses of iodine, to plenty of fresh water, or to a varied diet. Crowding, liver diet, and lack of fresh water tended to cause thyroid hyperplasia in fish. The thyroids of over 700 fish were examined both macro and microscopically and in no case could the condition of the thyroid change be said to be carcinomatous. Moreover the tissue gave the iodine reaction for colloid.

O. T. Schultz said that the value of this work lay in the observation that the thyroid was an unencapsulated gland and hence could "grow wild". Moreover this thyroid hyperplastic tissue gave the iodine reaction for colloid and could undergo reversion—thus differing from carcinoma.

D. Marine, in conclusion, said that in all this work with the thyroid it should be remembered that goiter was not a disease but only a symptom. One was very likely to be mistaken in applying standards, perfectly valid for one sort of animal, to animals of other species.

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### COUNCIL MEETINGS.

The Council of the Academy met Thursday, February 9, 1911.

The following were elected to active membership: F. G. Boudreau, H. H. Davis, Herman Shube and R. B. Metz. To non-resident membership: C. B. Bliss, Sandusky; and J. D. Knox, Niles, Ohio.

The following names were ordered published for active membership: J. D. Hobson and F. E. Sexton. For non-resident membership: S. M. McCurdy, Youngstown, Ohio.

The resignation of T. E. Griffiths was accepted. Leo Reich was transferred to non-resident membership.

A report from R. K. Updegraff concerning his part in the lectures to school children was read. The report was referred to the Committee dealing with that subject.

It was voted that the Academy hold a smoker after the March meeting.

The Program Committee was authorized to send out postal cards pertaining to their work.

It was voted that the tickets for the banquet at the Ohio State Medical Meeting be sold at the same price as the cost of the banquet.

A report on the evils of dispensaries, contract and insurance medical work was made by R. J. Lawlor and C. E. Ward. The following Committee was appointed to investigate the subject: J. J. R. McLeod, Chairman, C. A. Hamann, C. Gentsch, J. G. Spenser, and J. E. Tuckerman.

The Secretary was appointed a Committee of one to investigate the subject of transportation for the members of the American Medical Association to the meeting in Los Angeles.

The report of the Committee to Suggest Amendments to the Constitution was read. It was voted that the report be taken up at a special meeting.

A special meeting of the Council of the Academy was held Saturday, February 11.

It was voted that the matter of a special assessment to defray the expenses of the coming Ohio State Medical Meeting be referred to the Committee on Arrangements with power to act.

It was voted that certain members, whose names were read by the Treasurer, be dropped for non-payment of dues.

The report of the Committee to Suggest Amendments to the Constitution and By-Laws was read. The suggested amendments were approved and ordered published.

The Council of the Academy met Saturday, February 25.

The following were elected to active membership: J. D. Hobson, F. E. Sexton. To non-resident membership: S. M. McCurdy, Youngstown, Ohio.

The following names were ordered published for associate membership: W. A. Bisbee and W. H. Valway, veterinarians.

The resignation of O. E. George was accepted.

It was voted that A. P. Hammond bring before the Council all evidence he could collect in regard to physicians who advertised.

A. P. Hammond brought up the subject of the appointment about to be made on the State Board of Medical Examination and Registration. It was voted that the matter be referred to the Legislative Committee and that the Committee confer with A. P. Hammond.

It was voted that the Academy pass resolutions asking the State Board of Medical Examination and Registration to raise the standard of their examinations for midwives and to give the same in English only.

It was voted that the Committee to Suggest Amendments to the Constitution be instructed to print the revised Constitution in the Cleveland Medical Journal and also to have 1000 copies printed in pamphlet form.

The revised Constitution is as follows:

## Constitution and By-Laws of the Academy of Medicine of Cleveland

### Constitution

#### ARTICLE I

Section 1—The name of this organization shall be "The Academy of Medicine of Cleveland."

**Name**

Section 2—It shall be the county medical society of Cuyahoga County, and shall represent the physicians of this county in their corporate relations with the Ohio State Medical Association.

**Purpose**

#### ARTICLE II

The objects of this organization shall be: to promote the interests of the medical profession; to aid in the acquisition of medical knowledge; to foster the prosecution of medical research; to cultivate fraternal feeling among the mem-

**Objects**



bers of the profession; and to secure harmonious relations between all interests making for the advancement of medical science in the city, county, state and nation. For the attainment of these objects it shall provide for the formation of Sections within its membership; for the development of the Cleveland Medical Library; and for the furtherance of all measures which promote the general welfare of the community.

## ARTICLE III

**Members**

The Academy shall be composed of active, non-resident, associate, and honorary members. Only active members may vote or hold office, except as hereinafter provided for associate members.

## ARTICLE IV

**Officers**

The officers of the Academy shall be a President, a Vice-President, a Secretary-Treasurer, and six Trustees.

## ARTICLE V

**Composition  
of Council**

The officers of the Academy, the Presidents of the two preceding years, the Secretary-Treasurer of the preceding year, if not re-elected, the Chairman of each standing Committee, and the Chairman elected by each Section, shall constitute the Council of the Academy and shall be its executive committee. The business of the Academy, including the election of members, but not the election of officers, shall be in the hands of the Council.

**Functions of  
Council**

## ARTICLE VI

**Referendum**

All motions, resolutions or other new and miscellaneous business shall be referred at once to the Council without motion. The Academy, however, reserves the right, by majority vote, to order that any such business shall be immediately considered. It may, also, take from the Council for consideration and action any subject that has been referred to it.

## ARTICLE VII

**Quorum**

Fifteen active members shall constitute a quorum of the Academy.

## ARTICLE VIII

**Amendments**

Alterations or amendments to this Constitution shall be submitted in writing, at a stated meeting of the Academy at least four weeks prior to action on the same. Due notice of proposal to change shall be given to each active member, with the date upon which it shall be considered. An affirmative vote of two-thirds of the active members present shall be necessary to amend.

## By-Laws

### CHAPTER I

Section 1—Every reputable legally qualified physician, who is engaged in practice in Cuyahoga County, Ohio; every graduate in medicine engaged in instruction in colleges or universities; and every retired physician; providing they do not practice, nor profess to practice sectarian medicine, and are not affiliated with any organization which aims to foster an exclusive dogma in therapeutics, shall be eligible to membership.

**Active  
Members**

Section 2—Any physician, not a resident of Cuyahoga County, of good professional standing and a member of his county society, if such a society exists, shall be eligible to non-resident membership in the Academy.

**Non-Resident  
Members**

Section 3—Individuals not members of the profession, working in sciences allied to medicine, or interested in topics germane to the work of the Academy or one of its sections, shall be eligible to associate membership in the Academy.

**Associate  
Members**

Section 4—Any person who has risen to eminence in medicine or who has performed some great service for the medical profession, or for the Academy, shall be eligible to honorary membership.

**Honorary  
Members**

Section 5—All members shall be entitled to participate in the activities of the Academy, except as hereinafter provided in Chapter V under "Qualifications of Voters."

**Privileges of  
Members**

### CHAPTER II

Section 1—A candidate for membership shall present a written application, stating his full name, age, place of residence, medical school, date of graduation, and of registration or license by a State Board. This application must be accompanied by the initiation fee of two dollars (\$2), endorsed by two active members of the Academy, and shall be presented to the Council, or to a sub-committee of that body, for investigation. Upon a favorable result of investigation, the name of the candidate shall be published upon a general or Section program sent to all members, and after such publication shall be before the Council for election or rejection.

**Candidates for  
Membership**

**Application and  
Election for  
Membership**

Section 2—A nomination for honorary membership must be made in writing at a regular meeting by an active member in good standing, and must bear the endorsement of another such member. Such proposal shall be investigated, published and acted upon by the Council as provided in the section above.

**Nomination and  
Election of  
Honorary  
Members**



**Notification of  
Election to  
Membership**

Section 3—All candidates for membership shall be promptly informed by the Secretary of their election, and entered on the mailing list of the Academy and that of its official journal; and all, except honorary members, shall receive from the Secretary-Treasurer a bill for their annual dues; upon receipt of such bills they shall be due and payable.

**CHAPTER III****Non-Active  
List**

Section 1—For cause which seems sufficient to the Council, it may place any active member of the Academy upon a Non-active List. Members shall not be called upon for annual dues while upon this list. The Academy assumes no responsibility for such members to either the Ohio State Medical Association, the Cleveland Medical Library Association, or the Cleveland Medical Journal.

**Transfer of  
Membership**

Section 2—Upon permanent removal from the county, an active member in good standing may be transferred from active to non-resident membership by the Council, provided: first, that he applies to the Academy for such change; second, that his dues are paid in full to date; and third, that he has complied with all by-laws governing non-resident membership, except the payment of the admission fee.

**Resignation  
from  
Membership**

Section 3—The resignations of members shall be sent to the Secretary-Treasurer who shall submit them to the Council for action.

**Suspension  
from  
Membership**

Section 4—In April of each year it shall be the duty of the Secretary-Treasurer to present to the Council a roster of all members of the Academy. Upon this list shall be indicated all whose dues are unpaid, and these, by vote of the Council, may be declared suspended. With the advice of the Council, the Secretary-Treasurer shall then adopt such measures as may seem best fitted to secure the payment of dues from delinquents. Between the first of October and the first of December of the same year the Secretary-Treasurer shall report to the Council those whose dues are still unpaid. The names on this list shall be dropped from the roster of the Academy by vote of the Council, but any may be restored to membership by the same body on the payment of all arrearages, or be re-elected upon new application, as may be determined by the Council.

**Lapsing from  
Membership****Unprofessional  
Conduct**

Section 5—Any member who shall be found guilty of unprofessional conduct or of any criminal offense, may, on the recommendation of the Council, be expelled by a two-thirds vote of the active members present at a regular meeting of the Academy. Before such recommendation by the Council the accused must be given an opportunity to be heard by the Council in his own defense. Due notice must be sent to the members of the Academy stating the date of the

**Expulsion from  
Membership**

meeting at which final action is to be taken. Such action by the Academy shall be taken in executive session only.

Section 6—Whenever a member is suspended, dropped or expelled, the Secretary-Treasurer shall notify the individual of the fact, stating the cause of action.

**Notification of  
Suspension,  
etc.**

#### CHAPTER IV

Section 1—The admission fee for active, non-resident and associate members shall be two dollars (\$2), and must accompany the application for membership.

**Admission Fees**

Section 2—The annual dues for active membership shall be five dollars (\$5.00). The annual dues for non-resident and associate membership shall be one dollar (\$1.00). The dues of a member shall be payable from the first of the fiscal quarter-year succeeding his election, and for that year shall be a sum equal to as many fourths of the annual dues as there are remaining quarters in that year. The fiscal quarters begin on the first day of January, April, July and October.

**Dues**

Section 3—Honorary members shall be exempt from admission fees and dues.

Section 4—Extraordinary expenses may be met by assessment upon active members of the Academy only. Such assessment shall be levied by the Council. Notification of the assessment shall be in the form of a bill from the Secretary-Treasurer, upon the receipt of which the assessment shall be due and payable.

**Assessments**

#### CHAPTER V

Section 1—All general and Section elections shall be by ballot.

**Elections**

Section 2—Only active members shall be entitled to vote or hold office, except that associate members shall be entitled to vote and to hold office in the Sections to which they belong.

**Qualifications  
of Voters**

Section 3—The officers of the Academy shall be elected at the annual meeting in December. The term of office of the President, Vice-President, and Secretary-Treasurer shall be one year from the time of their election, or until their successors are elected and qualified.

**Time of  
Election**

The President, after a full term of service, shall not be eligible to immediate re-election. Two Trustees shall be elected each year for a term of three years. A plurality of all votes cast shall be necessary to elect.

**Term of Office**

Section 4—The resignation of officers shall be sent to the Secretary-Treasurer, who shall submit them to the Council for action.

**Resignation  
from Office**

Section 5—Any vacancy among the officers by death, resignation or otherwise, shall be filled by the Council, such officer to serve for the unexpired term.

**Vacancies**



## CHAPTER VI

**Duties of  
President**

Section 1—The President shall preside at all meetings of the Academy, shall appoint all committees, except as otherwise provided for by the Constitution and By-Laws, or ordered by the Academy, shall countersign all orders on the Secretary-Treasurer, and shall perform all other duties pertaining to the office. He shall be, *ex-officio*, President of the Council of the Academy, and a member of all standing Committees. On his retirement from office he shall continue to be a member of the Council for two years.

**Duties of  
Vice-President**

Section 2—The Vice-President, in the absence or disability of the President, shall perform the prescribed duties of this office.

**Duties of  
Secretary-  
Treasurer**

Section 3—(a) The Secretary-Treasurer shall record the proceedings of the Academy in a book kept for that purpose; he shall conduct the correspondence of the Academy. He shall keep separate lists of the active, non-resident, honorary, and non-active members; and also separate lists of the associate members according to the Sections with which they are affiliated.

**Membership  
Lists****Notices of Dues**

(b) He shall send notices of the annual dues and assessments to members; he shall receive and be accountable for all money belonging to the Academy, and shall disburse the same only upon presentation of bills signed by the President and authorized by the Council.

**Payment of Bills****Deposit of  
Funds**

(c) He shall give bond in such amounts as shall be decided by the Trustees, the expense connected with the same to be paid by the Academy. He shall deposit the funds of the Academy in its name in a bank approved by the Trustees.

**Arrearage List**

(d) He shall present to the Council in April of each year a roster of all members of the Academy. All who are in arrears shall be indicated on this list. He shall, further, present to the Council, between October first and December first, a second list of members whose dues are not paid.

**Notification of  
Election to  
Membership**

(e) Upon the election of candidates to active, non-resident, honorary or associate membership, he shall forward suitable notification of that fact to the successful candidates. This communication shall be accompanied by a copy of the Constitution of the Academy.

**Secretary of  
Council and  
Board of  
Trustees**

(f) He shall send such other notices, or attend to such business as the Academy may direct. He shall be, *ex-officio*, Secretary of the Council, Secretary of the Board of Trustees, and a member of the Program Committee. If not re-elected, he shall be a member of the Council for one year after the expiration of his term of office.

**Notice of  
Annual  
Election**

(g) The Secretary-Treasurer shall mail to all active members a list of all nominees to the several offices with the announcement and program of the annual meeting.

(h) It shall be the duty of the Secretary-Treasurer to transmit to the Ohio State Medical Association, such information as may be required by the By-Laws of that body, and to perform such other duties as may be necessary to maintain close relations with the organized medical profession of the State of Ohio.

**Duty to Ohio  
State Medical  
Association**

Section 4—The Board of Trustees shall be the legal representatives of the Academy in all matters pertaining to its chartered relations and obligations in case of its incorporation. It shall have charge of, and be responsible for, all property of whatever character belonging to the Academy. The Trustees shall be, *ex-officio*, members of the Council.

**Duties of  
Trustees**

**Charge of  
Property**

#### CHAPTER VII

Section 1—The members of the Council shall be the elected officers of the Academy, the Presidents of the two preceding years, the Secretary-Treasurer of the preceding year, if not re-elected, the Chairman of each standing Committee and the Chairman elected by each Section. The President and Secretary-Treasurer of the Academy shall be, respectively, President and Secretary of the Council.

**Members and  
Officers of  
Council**

Section 2—The regular meetings of the Council shall be held during the second week in each month, from September to June, inclusive. The President may call special meetings of the Council for the transaction of business, and shall call the same upon the written request of three of its members.

**Regular  
Meetings  
of Council**

**Special Meetings  
of Council**

Section 3—Seven members shall constitute a quorum.

**Quorum**

Section 4—(a) The Council shall transact all routine business of the Academy. All new business brought before the Academy shall be referred by the President to the Council for action unless otherwise provided for in the Constitution and By-Laws. It shall determine its own rules of procedure.

**Duties of  
Council  
Business**

(b) All candidates for membership in the Academy shall be voted upon by the Council, after due investigation and approval of their qualifications and publication of the names of the candidates upon a program of the Academy, or upon that of one of its Sections. Should there be two adverse votes cast against any candidate further action upon this application shall be postponed for one month, at which time the vote of three-fourths of the Council present shall be necessary to elect.

**Approval of  
Candidates for  
Membership**

**Election of  
Candidates to  
Membership**

(c) The Council shall investigate any charges of improper and unprofessional conduct when preferred against a member of the Academy in writing.

**Trials**

(d) The suspension and expulsion of members for non-payment of dues, the re-instatement or re-election of such members, the transfer of members, the acceptance of resignation of mem-

**Suspension, etc.,  
of Members**



**Filling  
Vacancies**

bers and officers, the filling of vacancies in office and committees, and the placing of members on the non-active list, shall be in the hands of the Council.

**Declared  
Vacancies**

(e) The Council shall have power to declare any office in the Academy or its Sections, appointive or elective, vacant, and elect a successor, in case the incumbent fails to perform properly the duties of his office.

**Levy of  
Assessments**

(f) The Council may levy assessments on active members of the Academy to provide for unusual or extraordinary expenses.

**Authorization  
of Expenses**

(g) The Council shall authorize the payment of the expenses of the Academy, and, annually in June, shall direct the Secretary-Treasurer to pay the Cleveland Medical Library Association, for maintenance of the auditorium for the current year, such sum as the Council of the Library Association and the Council of the Academy shall agree upon. This sum, however, shall not be less than three hundred dollars (\$300).

**Arrangement  
for Meeting  
Place**

(h) The Council may arrange with the Cleveland Medical Library Association each year for the meeting of the Academy and its Sections in the Library building.

**Delegates**

(i) The Council shall provide for the election by the Academy of all delegates to the Ohio State Medical Association, and shall provide each delegate with a certificate of election, signed by the President and Secretary-Treasurer of the Academy.

**Salary of  
Secretary-  
Treasurer**

(j) The Council shall fix the salary of the Secretary-Treasurer.

**Publication of  
Programs, etc.**

(k) The Council shall arrange for the publication of programs and announcements of the Academy and its Sections.

**Report of  
Council**

Section 5—The Council shall report through the Secretary-Treasurer of the Academy at its regular meetings its action upon items of new business, whether originating in the Academy or in the Council. The Council may also report, with or without recommendations, on any matter in any stage of its consideration, either as a report of progress or for action by the Academy. The Academy reserves the right at all times to take any matter from the Council on a majority vote of the active members present or to call upon it for information.

**Limitation of  
Power****CHAPTER VIII****Standing  
Committees**

Section 1—(a) The following standing Committees shall be appointed by the Council at its first meeting each year, to serve for one year. The President of the Academy shall be, *ex-officio* a member of each standing Committee.

**Membership**

(b) A Membership Committee consisting of seven members.

**Program**

(c) A Program Committee consisting of a Chairman, together with the Secretary-Treasurer of the Academy and the Secretaries of the various Sections.

(d) A Legislative Committee consisting of five members.

**Legislative**

(e) A Committee on Public Health consisting of five members, and

**Public Health**

(f) A Civic Committee to consist of three members.

**Civic**

(g) The Chairman of each standing Committee shall be, *ex-officio*, a member of the Council.

**Resignation  
from  
Committees**

(h) Any member of a standing Committee who shall be unable to perform the duties assigned to him by the Council shall present his resignation to the Secretary-Treasurer of the Academy.

Section 2—(a) It shall be the duty of the Membership Committee to strive diligently to increase the membership of the Academy, to the end that it may include all eligible members of the medical profession in Cuyahoga County.

**Duties of  
Membership  
Committee**

(b) The Membership Committee shall take cognizance of the deaths of members; shall see that proper action is taken, and that the Academy is properly represented if the occasion requires it.

**Necrology**

Section 3—(a) It shall be the duty of the Program Committee to arrange for the presentation of scientific and other papers at the meetings of the Academy and its Sections, and to arrange from time to time, with the advice and assistance of the Council, for addresses from men of note in the profession from other parts of the country. Such invitations shall be extended only after consideration by the Committee as a whole.

**Program  
Committee**

(b) Change of time or place of Academy or Section meetings may be made only after consideration by the Committee as a whole.

**Change of Time  
or Place of  
Meeting**

(c) The Program Committee shall meet not less than once a month, September to June inclusive, and the Chairman shall report to the Council at its monthly meetings or at such other times as requested.

**Meeting of  
Program  
Committee**

Section 4—It shall be the duty of the Legislative Committee to propose and to urge the passage of state and municipal legislation for the elevation and progress of medicine, and for the protection of the public and the medical profession. It shall endeavor to support and enforce existing laws on these subjects, and to use all suitable means of repelling attacks and encroachments upon them. All legislation, proposed by this Committee, must receive the approval of the Council before being offered for enactment.

**Legislative  
Committee**

Section 5—It shall be the duty of the Committee on Public Health to report to the Council such suggestions for action as will, in its judgment, tend to benefit the whole community; and at the direction of the Council, or upon its own initiative, to deal with all questions in which the science of medicine is related to public affairs, especially in the City of Cleveland.

**Public Health  
Committee**



**Civic  
Committee**

Section 6—It shall be the duty of the Civic Committee to promote an intelligent attitude among the laity toward medical progress and to issue, through the press or otherwise, in the name of the Academy, such facts as shall make for this end; to seek to establish an equitable adjustment of the economic relations of the public and the profession; and to investigate, suggest, aid and initiate sociologic reforms in medical and eleemosynary institutions in harmony with public and professional interests. Action by this Committee shall be subject to approval by the Council.

## CHAPTER IX

**Special  
Committees**

Section 1—Special committees, unless expressly provided for in the Constitution and By-Laws, may be appointed by the President or by the Council, or as the Academy may direct.

**Nominating  
Committee**

Section 2—At the stated meeting of the Academy in October, a Nominating Committee of five shall be nominated, and elected by a majority vote of the active members present. It shall be the duty of this Committee to present to the Academy at the stated meeting in November not less than two candidates each for the positions of President, Vice-President, Secretary-Treasurer, and four candidates for Trustees. The Nominating Committee shall put upon this list only the names of active members who have consented to serve if elected. Additional nominations may be made from the floor by an active member, after the presentation of the report of the Nominating Committee.

**Nomination  
from the Floor****Auditing  
Committee**

Section 3—At the stated meeting in November, the President shall appoint a Committee to audit the accounts of the Secretary-Treasurer for the annual meeting.

## CHAPTER X

**Formation of  
Sections**

Section 1—Any ten active members of the Academy, or any ten individuals interested in technical or scientific subjects allied to medicine, who may desire to organize a Section in any department of medical science or practice, or allied subject, must certify in writing to the Council of the Academy their desire for such an organization. The authorization of such a Section shall rest with the Council.

**Section  
Membership**

Section 2—All members of the Academy shall be eligible to membership in any Section, except that associate members shall be limited to membership in their respective Sections. The privilege of attending meetings of the Sections shall be open to all members of the Academy.

**Section  
Assessments**

Section 3—Sections shall have no admission fees nor annual dues, but may assess themselves for special purposes.

**By-Laws of  
Sections**

Section 4—By-Laws governing the conduct of each Section shall be adopted by the Section concerned, provided that they do not conflict with the Constitution or By-Laws of the Academy,

**Names of  
Sections**

and that they be approved by the Council. Sections shall be known as the .....Section, Society or Club of The Academy of Medicine of Cleveland.

Section 5—The annual meeting of a Section shall be the last meeting of that Section in the year.

Section 6—At the annual meeting of each Section, or at a previous meeting, a Nominating Committee of five shall be nominated and elected by a majority of the members present. This Committee shall present to the Section at its annual meeting not less than two candidates for each office to be filled. Additional nominations may be made from the floor after the presentation of the report of the Nominating Committee.

Section 7—At its annual meeting each Section shall elect a Chairman, a Secretary and such other officers as it may deem necessary. Their term of office shall correspond to that of the President of the Academy. They shall continue in the performance of the duties of their respective offices until their successors are elected. The Chairman and Secretary of the Section shall perform such duties as usually fall to these officers, and with such assistants as they may desire to appoint, shall act as Program Committee for the Section. The Secretaries of all Sections shall be *ex-officio* members of the Program Committee of the Academy. The Chairman elected by the Section shall be a member of the Council of the Academy and entitled to a vote therein. The Chairman of a Section shall not be eligible for immediate re-election.

Section 8—(a) The program of Section meetings, with times and place of meeting, shall be announced to the members of the Academy by its Secretary-Treasurer under such regulations as may be determined by the Council.

(b) The Program Committee may arrange for meetings of the Academy in conjunction with and in charge of one or more of the Sections, provided that there shall be not to exceed two Academy meetings during the month.

Section 9—It shall be the duty of the Council to arrange for the meetings of all Sections at the Cleveland Medical Library.

Section 10—The Chairman of each Section shall report annually to the Council at its December meeting on the attendance, number of meetings and subjects of discussion for his Section; and these reports shall be embodied in the annual report of the Council of the Academy.

Section 11—The Council shall have the power to disband any Section upon application from the members of that Section, or if the Section fails to meet for three consecutive meeting dates, or if the membership falls below ten.

#### CHAPTER XI

Section 1—The stated meetings of the Academy shall be held on the third Friday of each

**Annual  
Meetings  
of Sections**

**Nominations**

**Officers of  
Sections**

**Section  
Programs**

**Joint Meetings**

**Meeting Place  
of Sections**

**Report of  
Section  
Chairman**

**Dissolution of  
Sections**

**Date of Meetings**



month from September to June, inclusive. The Council may postpone or omit meetings should it be deemed necessary. The stated meeting in December shall be the annual meeting for the election of officers and other business.

#### Special Meetings

Section 2—Special meetings shall be called at any time by the President at the direction of the Council or upon the written request of twelve active members of the Academy. At such meetings, any program of literary exercises may be offered, but such business only shall be transacted as has been specified on the call of the meeting.

#### Adjourned Meetings

Section 3—Any meeting, stated or special, may be adjourned from day to day.

### CHAPTER XII

#### Order of Business

Section 1—The order of business for the stated meetings of the Academy shall be as follows:

(a) Call to Order and Reading of Minutes of the previous meeting.

(b) Report of Council and Unfinished Business.

(c) New Business.

(d) At the stated meeting in October, election by the Academy of a Nominating Committee of five members.

(e) At the stated meeting in November, nominations to office by the Nominating Committee, and opportunity for further nominations by active members of the Academy.

(f) At the stated meeting in November, appointment by the President of an Auditing Committee of three members.

(g) Presentation of Cases.

(h) Program of the Evening.

(i) Reports of Cases and Exhibition of Specimens.

(j) Adjournment.

Section 2—The order of business for the annual meeting of the Academy shall be as follows:

(a) Call to Order and Reading of Minutes of previous meeting.

(b) Annual Reports of the Council, the Secretary-Treasurer and the Auditing Committee.

(c) Annual Reports of the Standing Committees and Trustees.

(d) Election of Officers.

(e) Miscellaneous Business.

(f) Annual Address of the Retiring President.

(g) Adjournment.

### CHAPTER XIII

#### Time Limit for Papers

Except by previous arrangement with the Program Committee, and notification of the presiding officer, all papers and appointed exercises before the Academy shall be limited to twenty minutes. Five minutes only shall be allotted to speakers in discussion, and for the voluntary report of cases or presentation of cases and specimens, unless, at the wish of the members present, a longer time is granted.

#### Time Limit for Discussion

## CHAPTER XIV

With respect to all matters for which no provision is contained in the Constitution or By-Laws, the conduct of the Academy shall be governed by the customary methods of procedure as set forth in Roberts' Rules of Order.

**Rules of Order**

## CHAPTER XV

Alterations or amendments to these By-Laws shall be submitted in writing at a stated meeting of the Academy at least four weeks prior to action on the same. Due notice of proposal to change shall be given to each active member, with the date upon which it shall be considered. An affirmative vote of two-thirds of the active members present shall be necessary to amend.

**Amendments**


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## Book Reviews.

A Handbook of Practical Treatment. In three volumes. By 79 eminent specialists. Edited by John H. Musser, M. D., Professor of Clinical Medicine, University of Pennsylvania; and A. O. J. Kelly, M. D., Assistant Professor of Medicine, University of Pennsylvania. Volume 1: Octavo of 909 Pages, illustrated. Philadelphia and London; W. B. Saunders Company, 1911. Per volume: cloth, \$6.00 net; half morocco, \$7.50 net.

The publication recently of a number of works devoted exclusively to treatment would rather indicate that the therapeutic side of medicine is now receiving more attention than some time ago, and this volume will still further serve to emphasize the value of the therapeutic viewpoint. As is stated in the preface: "There is in medicine an art and a science—each mutually dependent on the other. The practising physician's chief concern, however, is with the art rather than the science." In other words it is centered in the practical treatment of disease, and this work of over 900 pages is devoted to therapeutics in its practical aspect, and embodies all that its name implies. It is conveniently arranged and comprises General Principles, Physical Methods, Intoxications, Blood, Lymphatics and the Ductless Glands.

The opening chapter by John H. Musser considers quite fully the Fundamental Principles of Therapeutics under the broad heads of the Morphologic Expressions of Disease and the Defences of the Organism. Preventive Treatment follows, and Dietetics in its general application as well as in the special domain of Infancy covers over 100 pages.

The General Principles of Drug Treatment, by Sir Lauder Brunton comprises, within about 50 pages, a most admirable survey of this subject under the subdivision of the various systems—digestive, respiratory, etc. Serum and Organotherapy each have a special chapter, and Non-Medicinal Methods and Management are amply considered. Drug Poisoning and Drug Habits are discussed by Horation C. Wood, Jr., and Sunstroke by James Tyson. Diseases of the Blood by Richard C. Cabot and Diseases of the Lymphatics and Ductless Glands by George Dock are quite full in their presentation. A chapter devoted to the Surgical Treatment of Diseases of the Thyroid and Parathyroid Glands completes the volume. It is a very satisfactory work throughout and a trustworthy guide to treatment.

J. B. M.



Allergie, von Dr. Clemens Frh. von Pirquet, o. o. Proffessor der Kinderheilkunde an der Universitat Breslau. Mit 30 in den Text gedruckten Abbildungen. Berlin. Julius Springer. 1910.

In a monograph of about 95 pages, von Pirquet collects all the data regarding "Allergie", and presents them in a very clear and concise form, enabling any one who can read German to quickly educate himself as to the present status of this very interesting subject. Much misunderstanding has been caused by this term Allergie, simply because the original description given by von Pirquet has not been read by those who have attempted to work in this field and, therefore, the author first describes very clearly what he means by Allergie; namely, the reaction of the patient to any kind of vaccination, be this reaction one of immunity or be it one of hyperexcitability (anaphylaxis). The important point is that the patient reacts, and von Pirquet has classified this reaction according to quality, quantity and time. In other words, Allergie is purely and simply a clinical term without any bacteriological, pathological or biological prejudice.

Then follows the very interesting history on the work of immunity from the time of Jenner to the present day. Under the "special" part of the monograph, the author considers the theory and symptomatology of urticaria, hay-fever, vaccination, variola, measles, tuberculosis, glanders, actinomycosis, leprosy, syphilis, diseases caused by mycelia, typhoid, diphtheria, scarlet fever, "Serum-Krankheit" and the symptoms appearing after the injection of various proteins.

The "general" part includes a summary of the special, and the theory of Allergie. It is impossible to attempt to present this theory here in abstract form, and those who are interested must read the original. It might not, however, be amiss to simply state that von Pirquet believes that the stage of incubation represents the time that elapses from the day of infection until the day when enough antibodies have been produced by the human organism to combine with the toxin of the bacteria to form another toxic product, which causes the so-called "real" symptoms, and apparently the beginning of the disease.

H. J. G.

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Primer of Hygiene. By John W. Ritchie and Joseph S. Caldwell. New World Science Series. World Book Co., Yonkers-on-Hudson, N. Y. 1910.

This little textbook for use in public schools, is simply and logically planned. After a brief description of the human body each group of organs is treated separately and ways of keeping them in health discussed. For example, in connection with digestion the children hear about the values of foodstuffs, economical buying, and proper ways of caring for and preparing foods; with the lungs as text they study their ventilation, dust, how rooms should be swept, and why adenoids are dangerous. Alcohol and tobacco are treated more temperately, therefore more convincingly, than is customary in most textbooks. The common infectious diseases are studied with the idea of preventing their spread. Many and varied pictures help to fix the lessons in the mind. An excellent feature is the "Suggestions and Topics for Development" with easily accessible references for the teacher at the end of each chapter. The book is a convenient size, attractive, and in a style which should be pleasant to children and easily understood.

E. B. P.

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Principles of Public Health. By Thomas D. Tuttle, B. S., M. D., World Book Co., Yonkers-on-Hudson, N. Y. 1910.

Uniform with the Primer of Hygiene noticed above, this book covers the same ground laying the stress upon the public aspect of the subject

rather than upon the personal one as does the other volume. The arrangement is different, cells being here used as a basis, and the description of the body placed in the appendix. The style is more advanced and the treatment more comprehensive than in the *Primer of Hygiene*; but the tone is often aggressive and might be found irritating. Some of the cuts appear in both books, but each has also many others. While covering essentially the same ground the character of the two texts are so unlike that personal preference must decide the choice for the class room.

E. B. P.

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**Internal Secretions from a Physiological and Therapeutical Standpoint.**  
By Isaac Ott, A. M., M. D., Professor of Physiology in the Medico-Chirurgical College of Philadelphia, etc. 1910. E. D. Vogel, Easton, Pa. Price \$1.00.

In this pamphlet the author has assembled three formal lectures given in the Medico-Chirurgical College course, but compiled with more than ordinary care to announce and make intelligible to the students and alumni of the college the investigations of the Physiological Laboratory in this field. There are three lectures: I. The parathyroids. II. The pituitary. III. The Correlation of Glands with Internal Secretions. In each lecture the author reviews the results of the investigations which have contributed to our knowledge of these subjects and in the pamphlet prints the references to the original papers. The results of his own work, with reproductions of the tracings, are given and explained at the logical point in the development of the subject. In the third lecture attention is called to the fact that though the action of the internal secretions be apparently essential, direct, even simple, yet in fact there may actually be in all, and certainly in some cases, synergistic, supplemental, or antagonistic action between the various secretions, thus complicating the experimentation, confusing the results, and markedly lengthening the path from the laboratory to the bedside. The unexplained disturbances of carbohydrate metabolism by any changes in several of the better known internal secretions will serve to illustrate in concrete form this problem.

The lecture with the bibliography and tracings are therefore well adapted for use as general statements of these three fields which are now attracting many of our good investigators, and for use as a starting point to trace down the laboratory findings suggesting, condemning or justifying the therapeutic use of these particular animal extracts or tissues. At present the existing conditions apparently make it very profitable to the manufacturers of animal products, or near animal products, to publish gratis and distribute widely any laboratory findings enlarging the indications for the use of their products and so safe to neglect to mention even proved contraindications, that one must in the use of active animal substances, consider carefully, even studiously, the drug, the lesion, and first as well as last, the patient as a whole, lest he find himself contributing to said existing conditions as well as to said profits. Surely there is at present need for literature on this and allied subjects, written to be read outside the laboratory circle. The limited scope of this pamphlet may reduce its sale but not its usefulness.

A. R. W.

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**Food and Feeding in Health and Disease. A Manual of Practical Dietetics.** By Chalmers Watson, M. D., F. R. C. P. E., Assistant Physician Royal Infirmary, Edinburgh, Editor of the "Encyclopaedia Medica." Oliver and Boyd, Edinburgh and London. Wm. Wood and Co., Agents, New York.

The subject of dietetics is one that receives slight attention in the teaching of medical students, and yet it is so important that no one can be a really accomplished practitioner who has not made dietetic principles and practice an important part of his professional education. There is



therefore a great need for a book which deals with both the practical and theoretical side of this subject. Watson in the present valuable work has given an excellent theoretical discussion of the various classes of foods, their composition, their physiology of digestion and the methods of preparing various articles of diet. The greater part of his book includes a discussion of diet in the treatment of the various diseases. A unique feature is an appendix of 60 pages which gives in detail some very valuable experimental work, which the author has done to show the influence of diet on the structure of the tissues. From every standpoint this book can be recommended as one of the best books on dietetics that has recently been published. J. P.

**Around the World Dentistry.** By Henry Lovejoy Ambler, M.S., D.D.S., M.D., D. H., Cleveland, Ohio. Illustrations by the Author.

The author has written a very readable account of a recent trip around the world with special attention to the status of dentistry in the various places visited. There are a large number of illustrations from photographs taken by the author, many of these showing the establishments of some of the foreign dentists. To anyone who is interested in this subject or who may have some idea of practising dentistry in foreign lands the book will prove most interesting. W. H. W.

### Acknowledgments.

**A Manual of Physical Diagnosis.** By Brefney Rolph O'Reilly, M. D., C. M., (F. T. M. C. Toronto; M. R. C. S. Eng.; L. R. C. P. Lond.) With six plates and 49 other illustrations. Price \$2.00 net. P. Blakiston's Son & Co., Philadelphia, Pa.

**Inebriety.** A Clinical Treatise on the Etiology, Symptomology, Neurosis, Psychosis and Treatment and the Medicolegal Relations. By T. D. Crothers, M. D., Supt. Walnut Lodge Hospital, Hartford, Conn., etc. Harvey Publishing Company, Cincinnati, Ohio. 1911.

**A Manual of Cystoscopy.** By J. Bentley Squier, M. D., and Henry G. Bugbee, M. D. With 26 original plates, 18 of which are colored. Octavo. flexible leather \$3.00 net. Paul B. Hoeber, New York.

**Golden Rules of Diagnosis and Treatment of Diseases.** By Henry A. Cables, B. S., M. D., Professor of Medicine and Clinical Medicine of the College of Physicians and Surgeons, St. Louis, etc. C. V. Mosby Co., St. Louis, Mo. 1911. Price \$2.50.

**Modern Treatment: The Management of Disease with Medicinal and Non-Medicinal Remedies.** By Eminent American and English Authorities, Edited by H. A. Hare, M. D., and H. R. M. Landis, M. D. Price per volume in cloth, \$6.00, net; half morocco, \$7.50 net. Lea & Febiger, Philadelphia and New York.

**Handbook of Treatment for Diseases of the Eye (Ophthalmic Therapeutics).** By Dr. Curt Adam, Assistant Surgeon in the University Clinic for Diseases of the Eye, Berlin. With a preface by Prof. von Michel, Berlin. Translated from the second German edition (1910) by William George Sym, M. D., F. R. C. S. Ed., and E. M. Lithgone, M. B., F. R. C. S. Ed. With 36 illustrations. Rebman Co., New York. Price cloth \$2.50.

**Atlas of Microscopic Diagnosis in Gynecology.** With preface and explanatory text by Dr. Rudolf Jolly, Priv. Doc., Chief Physician of the Gynecologic Clinic, University of Berlin. Only authorized English translation by P. W. Shedd, M. D., New York. With 52 lithographs in color and two textual figures. Rebman, Limited, London. Price cloth \$5.50.

**Case Histories in Pediatrics.** A Collection of Histories of Actual Patients Selected to Illustrate the Diagnosis, Prognosis and Treatment of the Most Important Diseases of Infancy and Childhood. By John Lovett Morse, A. M., M. D., Assistant Professor of Pediatrics, Harvard Medical

School, Associate Visiting Physician at the Infants' Hospital and at the Children's Hospital, Boston. Octavo, 320 pp., illustrated. Price \$3.00. W. M. Leonard, Publisher, Boston, Mass.

A Preliminary Report on the Mortality of Cancer in the United States, as Given by the Census of 1910. By Walter B. Chase, M. D., Brooklyn, N. Y.

Annual Report of the Board of Regents of the Smithsonian Institution, Showing the Operations, Expenditures and Condition of the Institution for the year ending June 30, 1909.

Phylogenetic Association in Relation to Certain Medical Problems. Ether Day Address 1910. Geo. W. Crile, M. D., Cleveland.

Proceedings of the Canal Zone Medical Association for the Year 1909. April, 1909, to March, 1910.

Tentative Plans of the Forsyth Dental Infirmary to be established in memory of James Bennett Forsyth and George Henry Forsyth.

Transactions of the Fourth International Sanitary Conference of the American Republics.

Public Health and Marine-Hospital Service of the United States: Hygienic Laboratory—Bulletins Nos. 71 and 74. Public Health Bulletins Nos. 41, 42 and 44. Public Health Reports, Vol. XXVI, No. 9. Reprint from Public Health Reports, No. 56.

Reprints by: Otto Lerch, A. M., M. D., Ph. D., New Orleans, La. Charles P. Noble, M. D., Sc. D., Philadelphia Pa. E. W. Caldwell, M. D. New York City.

## Medical News.

**The St. Alexis Alumni Medical Association** met at the Hollenden Hotel, Thursday, February 2, 1911. Papers were read by J. V. Kofron and J. W. Russell.

**Carl W. Keyes** has removed his office from 15010 Detroit Ave. to 1912 W. 65th St.

**The Lakeside Hospital Medical Society** held its fifty-second meeting Thursday, February 23, 1911. The program was as follows: 1. Report of a Case of Ruptured Ectopic Pregnancy, Staphylococcus Infection of the Pelvic Cavity and of the Ectopic Sac, Recovery; Hunter Robb. 2. Report of a Case of Subdural Hemorrhage with Report of Operation, and Presentation of a Case of Skin Graft of the Foot; H. A. Coleman. 3. Presentation of a Case of Tabes Dorsalis with Laryngeal Crises; C. W. Wyckoff. 4. Presentation of a Case of Phosphorus Necrosis of the Jaw; S. Lodbetter. 5. Presentation of a Case of Trichiniasis; H. O. Ruh. 6. Presentation of a Case of Multiple Skin Tumors; H. K. Shawan. 7. Presentation of Pathological Specimens; E. P. Edwards.

**The Portage County Medical Society** met at Ravenna, Thursday, Feb. 10, 1911. The program was as follows: 1. Fractures, W. B. Andrews; discussion opened by L. A. Woolf. 2. Multiple Neuritis, W. B. Laffer, Cleveland.

**Meetings of the Academy of Medicine of Toledo and Lucas County:** The Surgical Section met Friday, January 27, 1911. The program was as follows: 1. Comparative Merits of Abdominal and Vaginal Cesarean Section, E. W. Doherty; discussion opened by C. N. Smith. 2. Treatment in Moderately Contracted Pelves, W. S. Dice; discussion opened by H. E. Smead.

The General Meeting of the Academy was held Friday, February 3, 1911. The program consisted of a paper upon The Etiology and Mechanism of Exophthalmos with Special Reference to its Occurrence in Nephritis, with Report of Two Cases, L. A. Levison; discussion opened by Otto Landman and W. H. Snyder. The following resolutions were passed at this meeting: "Whereas the dread disease trachoma, (commonly



called granulated lids), the ancient and present scourge of India and Egypt and the greatest menace to industrial efficiency on the Continent, has been found to be present among the foreign population in this city, especially on the East Side; and whereas, prevention is immensely easier, cheaper and more effectual than cure,—and the German Government has been spending thousands of dollars in treating the cases in their country and attempting to stamp out the spread; therefore be it resolved that the Academy of Medicine request the State Board of Health to declare this a contagious and communicable disease and that the attention of the public be called to the economic necessity of beginning treatment of the cases now known and measures taken to prevent its further spread." A buffet luncheon and smoker were held at the Boody House at the close of the meeting.

The Pathological Section met February 10, 1911. The program was as follows: 1. Flexner's Recent Work on Cerebrospinal Fever, John Gardner. 2. The Cultivation of the Lepra Bacillus, A. M. Rush. 3. Anaphylaxis, L. A. Levison. 4. Typhoid Immunity, S. B. Andrews. 5. The Growth of Normal and Pathological Tissue Sells on Culture Media, Todd Duncan.

The Medical Section met Friday, Feb. 17. The program was as follows: Meningitis in Infancy and Childhood, with Especial Reference to Examination of the Cerebrospinal Fluid, H. J. Morgan. 2. Facilities for Obtaining Flexner's Meningitis Serum in Northwestern Ohio, John P. Gardner.

The Muskingum County Medical Society met at Zanesville, Wednesday, February 8. The following program was presented: The Treatment of Acne, S. A. Allen. 2. Syphilis, G. Warburton.

H. T. Sutton, Zanesville, has been appointed member of the State Board of Health, to fill the place of J. C. Crossland, whose term has expired.

W. A. Melick, Zanesville, was recently operated on at Columbus for an infection of the antrum.

**The Corinna Borden Keen Research Fellowship of Jefferson Medical College:** The accumulated income of this fund now amounts to \$1,000. The Fellowship will be awarded by the Trustees upon recommendation of the Faculty to a graduate of the Jefferson Medical College of not less than one, nor more than ten years' standing, upon condition that he shall spend at least one year in Europe, America or elsewhere, wherever he can obtain the best facilities for research in the line of work he shall select, after consultation with the Faculty: and that he shall publish at least one paper embodying the results of his work as the "Corinna Borden Keen Research Fellow of the Jefferson Medical College". Address J. W. Holland, Dean.

### Deaths.

John C. McClung, Leipzig, Ohio, died February 3, aged 68.

Reynaldo D. Mackin, Grafton, Ohio, died January 31, aged 46.

Platt E. Beach, Seville, Ohio, died January 15, aged 55.

Alfred C. Denham, Cincinnati, Ohio, died January 11, aged 81.

Seth H. Truesdale, Poland, Ohio, died February 5, aged 69.

George W. Osborne, Dry Run, Ohio, died February 19, aged 58.

Charles H. Phelps, St. Marys, Ohio, died February 21, aged 68.

Frank B. Behner, Marion, Ohio, died February 19, aged 30.

Jeremiah B. Dustin, Bidwell, Ohio, died February 17, aged 62.

J. W. Bond, Toledo, Ohio, died January 20, aged 84.

Massillon Cassatt, formerly of Cincinnati, Ohio, died January 5, aged 71.

# The Cleveland Medical Journal

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## Some Comments Upon the Increase of Precision in the Methods of Studying Cardiovascular States and Upon the Application of the Principle of Protection and the Principle of Exertion in the Treatment of the Failing Heart.

By LEWELLYS F. BARKER, M. D., Professor of Medicine in the Johns Hopkins University and Physician in Chief to the Johns Hopkins Hospital, Baltimore, Md.

As medicine steadily advances the methods of diagnosis grow ever more complicated and precise, prognoses become more reliable and more satisfactory measures of treatment are devised. Occasions like the present afford fitting opportunity to clinical teachers to make an inventory of available procedures and to pass under review the newer measures which especially invite the attention of those who work in a given field.

When I received the kind invitation from Dr. Waite to address you at this meeting, I suggested several topics in internal medicine upon which I might speak; he has selected the subject which your chairman, Dr. Updegraff, has announced. The theme is a large one—so large that I must preface use a coarse-meshed sieve on the available material in order to separate an amount compressible within the limits of the time you allot me. If the comments I make are rather cursory and many important facts seem to be slighted, you will, I trust, be lenient in judgment, remembering that it is often the circumstances of the occasional

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*An Address delivered before the Alpha Omega Alpha Fraternity and the Clinical and Pathological Section of the Academy of Medicine of Cleveland, January 6, 1911.*



address rather than the desires of the speaker which make of his effort a sort of gentle effleurage!

The time-honored methods—inspection, palpation, percussion and auscultation—are still the most generally useful for the practitioner in the diagnosis of diseases of the heart and blood-vessels. The new procedures to which I shall refer cannot replace the old ones; on the contrary, they are to be regarded only as desirable supplements to them, and, to some degree, extending the results which they are capable of yielding.

Of the newer methods now available I shall mention especially (1) those which record graphically the movements of the apex beat, the arteries and the veins, (2) those in which the x-rays are employed, (3) those for determining the maximal and minimal arterial pressure and the venous pressure, (4) those which investigate the electromotive changes which occur in the heart muscle, (5) those for measuring indirectly the amount of blood in the body, (6) those which attempt to measure the work done by the heart, (7) those which deal with the peripheral distribution of blood in the body, and (8) those which graphically record heart sounds. As you will notice, these newer methods deal especially with what is known as “functional diagnosis,” a point of view strongly emphasized by your fellow-citizen, Dr. C. F. Hoover, in his excellent article entitled “General Considerations in Cardiovascular Disease,” in Vol. IV. of Osler’s “Modern Medicine.”

The graphic methods of recording pulsations have in recent years been made popular especially by James Mackenzie through his books. The small volume by J. Hay entitled “Graphic Methods in the Study of Heart Diseases” gives full directions for the use of the “polygraph” and for the interpretation of the tracings which it yields. A record of the arterial pulse (radial, brachial or carotid) is now called an *arteriogram*, that of the venous pulse a *phlebogram*, and that of the apex beat a *cardiogram*. Of these the tracings most generally useful for diagnosis are the simultaneously recorded pulsations of the carotid artery (giving data regarding the left ventricle), and of the jugular vein (giving data regarding the right atrium). Especially in the analysis of the various cardiac arrhythmias, including heart-block in its various forms, this mechanical method of study is very helpful. Oesophagograms, taken by Minkowski’s method, permit us to register the contractions of the left

atrium. The "youthful type" or "respiratory type" of arrhythmia, the "pulsus alternans," the "extrasystolic" irregularities, the "pulsus irregularis perpetuus" have become much better understood since the pulse tracings have been systematically registered by the Mackenzie instrument, the Jaquet cardiosphygmograph and the Hürthle apparatus. In America these graphic methods have been clinically applied especially by Bachman, Barker, Cushny, Dock, Draper, Erlanger, Hewlett, Hirschfelder, Hooker, James, Morrow, Peabody, Robinson, Thayer, Schmoll, and Young.

The application of the Roentgen rays to the study of the heart and vessels has turned out to be of unexpected value. The form, position and movements of each of the chambers of the heart, as well as of that organ as a whole, can now be accurately observed through the fluoroscope and by means of roentgenography and especially of the modification of fluoroscopy known as orthodiagraphy permanent records of the shape of the cardiovascular shadow can be made. In transillumination in the sagittal direction the shadow presents normally three curves on the left and two upon the right. These are from above downward (on the left), an upper curve (I) extending between the first and second ribs, due to the arch of the aorta, a middle curve (II), rather flatter, extending from the second to the third rib and due above to the pulmonary artery, below to the left atrium, and a lower curve (III) the longest of the three, extending downward to the left from the level of the third to that of the seventh rib, due to the left ventricle; on the right, the upper curve, above the third rib, represents the right margin of the superior vena cava and the lower curve, below the third rib, is due to the right atrium.

The cardiovascular shadow is somewhat broader when the screen is placed on the back and the anti-cathode in front of the chest than when the view is made in the opposite direction.

If one looks through from axilla to axilla (frontal transillumination), the patient holding his arms above his head, the antero-posterior diameter of the heart can be observed.

For the diagnosis of aortic aneurism, oblique transillumination is especially valuable and particularly when the tube is placed behind the left shoulder and the screen on the front of the right chest. Where formerly there was often much uncertainty as to the presence or absence of aortic aneurism, or as to its exact



size and position, the diagnosis can now be made easily and with great precision.

By fluoroscopic examination alone, especially with the aid of Siefert's transillumination box or Beclère's stand, enlargement of the left ventricle, of the left atrium, general dilatation of the heart, pericardial effusion, etc., can be quickly recognized. The movements of the atria and ventricles can be directly observed and in the Stokes-Adams syndrome the dissociation between the activity at the base of the heart and that of the ventricle can be recognized.

The orthodiagraphic study of the heart by parallel projection with the apparatus of Moritz or some modification of it (Groedel's, or Levy-Dohrn's) is valuable for research work. To a certain extent it may be replaced by the so-called ortho-roentgenography. The value of different methods of percussion of the heart remained in doubt as long as there was no means of controlling accurately the size of the heart. Since orthodiagraphic studies have been made, however, it has been possible to check up the various methods of percussion previously recommended, to show wherein they were faulty, and to work out a method (the method of Moritz) which permits of delimitation on the chest wall of an outline by percussion which corresponds very closely to the outline of the orthodiagram.

Recently roentgenography of the heart has been extended by the demonstration of the possibility of taking almost instantaneous photographs in systole or in diastole during one and the same phase of inspiration. Eijkman, a Dutch investigator, has devised an apparatus by which Roentgen photographs can be made in about  $1/100$  of a second. This apparatus simplifies Roentgen-ray photography to a remarkable degree. All the bothersome preparations to regulate the position and ensure the absolute quiet of the patient are done away with. One may take a photograph while the patient is speaking and the difficulties previously encountered with orthopnoeic patients or with crying children have been much lessened. Moreover, the saving in the Roentgen tubes is well worth considering. The exposure is so brief that the glass of the tube, it is said, is scarcely warmed.

Attempts also have been made by Eijkman successfully to undertake cinematographic studies of the movements of the heart. Thus far the results in that direction have not been

wholly satisfactory but it seems probable that before long the difficulties may be overcome and that we shall be able to observe the action of a heart on the moving-picture screen.

The bloodless methods of blood-pressure determination have undergone marked improvement since the earlier studies of von Basch and Riva Rocci. In this country especially the contributions of Erlanger, Janeway, Hooker, Eyster and Bishop are well known. The determination of the maximal and minimal arterial pressure can now be very satisfactorily determined either by the oscillatory, the palpatory, or the auscultatory method. I should like especially to make a plea in favor of the use of the auscultatory method for determining the minimal pressure. This method as used by Fellner and others has been carefully tested in the clinic in which I work and found to be sufficiently accurate for clinical purposes except in cases of aortic insufficiency. By subtracting the minimal arterial pressure from the maximal arterial pressure the so-called "pulse-pressure" is obtained, a value of some importance in judging of the systolic output of the left ventricle, one of the factors necessarily to be measured in calculating the work of the heart.

The simpler the methods of measuring maximal and minimal pressure can be made, the more quickly will it be possible to utilize blood-pressure estimations in routine clinical work in hospitals and in general practice. The little Tycos instrument now on the market, though somewhat expensive, is convenient and compact. The results it yields after a little practice are sufficiently accurate for clinical purposes. The maximal pressure can be very easily determined by it and with the aid of the auscultatory procedure the minimal pressure also; a determination of both pressures and of the pulse pressure can be made in a few minutes. This instrument has the advantage of doing away with easily breakable glassware and the troublesome mercury of the ordinary blood-pressure instruments. It occupies relatively little space in the consulting bag. If care be exercised in lowering the air pressure in the instrument after the reading has been made the spring will last a long time. Moreover, if the zero points become disturbed, the instrument can be reset easily.

How valuable determinations of the venous pressure are destined to become in clinical work it is as yet too early to say. The instrument devised by Eyster and Hooker, and especially



as improved by Cody, is conveniently workable and with its aid satisfactory readings can be obtained in many (though not in all) clinical cases.

Einthoven's string galvanometer, especially where used with the outfit planned and constructed by Edelmann, makes it possible to study the electromotive changes which occur in the heart muscle; this instrument is throwing new light upon the phenomena connected with the cardiac excitations. In the electrocardiogram, the wave P corresponds to the excitation of the atria, while the waves R and T appear to be synchronous with the excitation of the ventricle. The changes which these waves undergo in hypertrophy of the atria, in hypertrophy of the right ventricle, in hypertrophy of the left ventricle, in atrial paralysis, in heart-block, in gallop rhythm, in tachycardia, etc., are very characteristic. When ventricular extra-systoles occur, the course followed by the excitatory impulse through the heart muscle is very different from that followed by a normal excitation. The study of such "allodromic impulses" as contrasted with the "normodromic impulses" has shown that when an extra-systole arises in the right ventricle an entirely different electrocardiogram is obtained than when the extra-systole has its origin in the left ventricle. In the heart-block cases, if the lesion be in the upper part of the His bundle the ventricular excitations may be normodromic in type but the atrial excitations (P-waves) no longer stand in fixed temporal relation to the normodromic ventricular excitation (R- and T-waves).

A cardiac arrhythmia can now be more easily unravelled by means of electrocardiograms than in any other way. The researches by Einthoven, Kraus and Nicholai, Rothberger and Winterberg, H. E. Hering, Jr., F. A. Hoffmann and Thomas Lewis have demonstrated the clinical importance of these electrocardiographic studies. In this country electrocardiographic stations have already been set up in several of the larger hospitals and publications on the subject are beginning to appear in the American literature. (James and Williams; Barker, Hirschfelder and Bond.)

It is now possible also to determine approximately by an indirect method the amount of blood present in the human body at a given time. One of the best ways of doing this is that which has been worked out by Plesch and Zuntz. This method can be recommended on account of its accuracy and clinical con-

venience. It seems very probable now that the normal amount of blood in human beings is not  $1/13$  but about  $1/19$  of the body weight. Studies thus far indicate that there is a relative diminution of the amount of blood in obesity and after chronic recurring hemorrhages, while the total quantity of blood is relatively increased in chlorosis and in the non-dropsical forms of nephritis.

Interest has also largely grown in the efforts which are being made to determine the work of the heart. One of the most important steps in this direction is the research of Plesch which has resulted in a tolerably satisfactory method for the determination of the so-called "minute volume" of the heart. This determination—the estimation of the amount of blood sent per minute into the aorta—depends upon three factors: (1) the amount of oxygen used by the organism per minute, (2) the oxygen capacity of the blood, and (3) the oxygen content of the venous blood. From Plesch's studies, it would seem that the "minute volume" in the healthy adult human being averages 4.3 litres, corresponding to a systolic output of 60 c.c. The values found in a number of measurements vary between three and five litres for the "minute volume," or between 40 and 80 c.c. for the systolic output.

These studies of Plesch further demonstrate that only about 29% of the oxygen of the arterial blood is on the average used up; in other words, the blood returning to the heart through the vena cava still contains 68% to 70% of its oxygen. During work, or in disease, the amount of unused oxygen may fall to 52%, while in congenital lesion of the heart permitting direct communication between the right and left sides the venous blood may contain as much as from 83% to 88% of the oxygen.

When the body is at work there is some increase in the amount of oxygen of the arterial blood used up, but when the oxygen requirement is at all great it is met, not by a better utilization of the arterial oxygen, but by an increase of the "minute volume." In violent exertion during a brief period, the oxygen requirement may be so great as to be 22 times that of the amount used when the body is at rest.

By combining the data arrived at by determining the total amount of blood in the body and by determining the "minute volume" of the left ventricle one knows at once in how many seconds the total amount of blood may be made to pass through



the heart, that is, the duration of the entire circulation. It would appear from Plesch's studies that in healthy adults the time required for the complete circulation is some 55 seconds, corresponding to about 65 heart beats. During violent exertion an amount equal to the total amount of blood may pass through the heart in as brief a period as five seconds.

In the anaemias, in which the total amount of blood is diminished, the "minute volume" may be greatly increased, leading to a "total circulation" in a very brief period (seven to thirty seconds). The variations stand in close relation to the degree of haemoglobinanaemia; generally speaking, the greater the anaemia the quicker the "total circulation."

The velocity of the current of blood is also easily arrived at with the factors above mentioned. In health the translatory velocity is about 42 cm. per second. Of course this velocity is greatest at the aorta and least in the capillaries.

The researches upon the heart-work proper which have been most helpful for clinical conceptions include those of Strasburger, those of Erlanger and Hooker and those of Plesch.

The work of the heart is divisible into two parts; first, that of driving the blood into the aorta by overcoming the tension prevailing there (so-called *blood-raising* or *blood-lifting work*); second, that which gives the blood the velocity with which it flows on in the aorta (so-called *blood-flow work*).<sup>\*</sup> The blood-flow work amounts to only about 2% or 3% of the blood-raising work.

The blood-raising work of the whole heart when the body is at rest is said to amount to 12 mkg. per minute; during hard work it may be ten times as great. Now it is known that for 1 mkg. of work a muscle requires 1.3 c.c. of oxygen; accordingly, the heart when at rest would need 14 c.c. of oxygen and when working its hardest as much as 160 c.c. of oxygen, or 6% of

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<sup>\*</sup>The blood-raising work corresponds to the formula  $w=pr$ , in which  $p$  is the weight of the mass of the blood thrown out and  $r$  the resistance or mean aortic pressure.

The blood-flow work depends upon the velocity of the mass ejected into the aorta; the energy represented in mechanical work is estimated from the formula  $\frac{pv^2}{2g}$  in which  $p$  represents the mass moved,  $v$  the ve-

locity of its movement and  $g$  the accelerating force of gravity. For further details the Textbooks of Physiology of Howell, or of Stewart, may be consulted.

the total oxygen requirement of the body. From these data Plesch has further made calculations on the blood supply of the heart through the coronary arteries and comes to the conclusion that about 180 c.c. of blood pass through the heart muscle every minute. If this conclusion be anywhere near correct, it indicates that the blood supply of the heart is eight times as great as that of other parts of the body, an arrangement which may explain the speedy removal of fatigue-products from the heart muscle during work.

Von Bergmann and Plesch have shown that when the oxygen requirement of the body is increased by work the "minute-volume" increases, though the systolic output may or may not be increased. In exophthalmic goitre, where the oxygen requirement of the body is markedly increased, sometimes reaching 8.5 c.c. per kilogram and minute, the "minute-volume" also increases, though the systolic output remains normal. The heart work per minute is of course increased.

In the Adams-Stokes syndrome the "minute-volume" as determined in an anaemic patient was found to be very high (9000) and the systolic output very large (200), and there was dilatation of the left ventricle in the case studied.

Attention is becoming ever more directed to the peripheral distribution of blood in the body. The researches of Weber have shown that, in hypnotized individuals, suggestion leading to lively motor ideas raises the blood pressure, the extremities receiving more blood and the abdominal organs less.

On the experimental side H. C. Thacher has shown that in acute passive congestion the volume of the various organs of the body changes in a very different way. The liver and brain become fuller of blood, while the kidneys, intestines, spleen and extremities grow smaller. The organs which have weak vasomotors fill up easily under the venous pressure, while those with strong vasomotor innervation get less blood, owing to the constriction of the arterial paths. Obviously, therefore, when a passive congestion is suddenly produced at the right heart the brain and liver undergo outspoken venous congestion, while the kidneys, spleen, intestines and extremities are exposed to a marked arterial anaemia. It is interesting that the change in distribution of the blood in acute cardiac stasis thus seems to depend less upon mechanical factors than upon the vasomotor innervation of the individual organs and parts. Such a stasis-constriction



of the kidneys, spleen, etc., may be a compensatory measure to prevent too great a fall in blood pressure.

Physiologists and clinicians have also worked out methods by which the heart sounds and heart murmurs can be mechanically registered in the form of so-called phonocardiograms. In a recent article (Electrocardiography and Phonocardiography, *The Johns Hopkins Hospital Bulletin*, Vol. xxi., No. 237, Dec., 1910) I have reviewed the literature on the subject. The method of Einthoven and the method of Weiss seem the two procedures most likely to be of clinical value. In the article referred to, mention is made also of the "telephone stethoscope" invented by S. G. Brown through which the sound of the heart beat is intensified about 60 times. Brown's instrument can be attached to the long distance telephone service; by means of it, the heart sounds of a person in London have already been listened to and heard distinctly by physicians in the Isle of Wight, 100 miles away.

In everyday practice, it is of course not possible to work up every cardiovascular case by utilizing the methods of precision to which I have referred, but in selected cases in hospital practice much advantage can be gained from thorough investigations along the lines mentioned and if a few cases are followed carefully in this manner one quickly gets an insight into cardiovascular conditions which quickens one's perceptions when using the ordinary simpler methods of examination.

Turning now to the treatment of some of the forms of cardiac failure I desire to call attention especially to the desirability, as emphasized long ago by Hoffmann, of keeping in mind two main principles; (1) the principle of protection of the heart; and (2) the principle of its exertion. One will have far less difficulty in deciding as to the therapeutic measures most likely to be of benefit at a given juncture if he will ask himself the question, after a thorough study of the case, "In how far is it necessary to protect this patient's heart muscle and in how far should I stimulate it to exertion?"

In the failing heart it is of course the condition of the cardiac muscle which is of greatest importance. In valvular disease, in adhesive pericarditis, in atherosclerosis, as well as in the primary diseases of the cardiac muscle, when decompensation sets in, any hope for successful therapeutic intervention lies in our ability favorably to influence the functions of the cardiac muscle.

Before instituting any therapy directed toward the strengthening of the cardiac muscle a diagnosis of the degree of muscular insufficiency which exists should be arrived at, and here long experience with the phenomena of cardiac insufficiency is of help. One meets in practice with every gradation from the mildest forms of muscular weakness, wholly unsuspected by the patient, to the highest grades of muscular insufficiency with orthopnoea, cyanosis, general anasarca, albuminuria and outspoken cardiac dilatation.

As a general rule a failing heart calls for the application of the principle of protection for at least a certain period before resorting to the application of the principle of exertion. We protect the cardiac muscle by giving the heart as little work as possible to do for a time. The more important protective measures include (1) bodily and mental rest, (2) a diet limited in amount and easily digestible, (3) the restriction of the intake of liquids, (4) the insurance of a proper amount of sleep, (5) the treatment of hydrothorax, ascites or anasarca, or, if they do not exist, the reduction of the total quantity of fluid in the body by limiting the sodium chloride intake and by purgation and diuresis, and (6) venesection, in cases in which the right heart, especially, is failing and the venous system is markedly overfull.

If one were to limit himself to a single method of treatment in beginning cardiac failure to the exclusion of all others he would undoubtedly choose rest and, preferably, rest in bed and, where possible, entirely away from business cares and from the disturbances even of family life. One reason why so many patients who have failed to respond to therapy outside hospitals, do well on entering a hospital ward, is undoubtedly due to the factor of rest.

In severe cases the rest in bed and seclusion may have to be prolonged. If dyspnoea be present the patient may be allowed to assume the position in bed which he finds most comfortable. The Gatch bed, which supports the extremities flexed at the knees when the patient is sitting up with a back-rest and thus prevents him from slipping downward in the bed, has been found very serviceable in the Johns Hopkins Hospital as an aid in making cardiac patients more comfortable.

As to diet, one general rule applies to the vast majority of patients suffering from the various forms of cardiac failure; namely, the giving of several small meals rather than three large



ones. If three small meals be given at the regular times and in addition a little nourishment be offered in the middle of the forenoon, in the middle of the afternoon, and at 9 p. m., the patient will receive plenty of food and the digestive system will at no time be overburdened. The food should of course be easily digestible and articles of diet which tend to cause bloating should be especially avoided.

Where the heart is laboring it is nearly always desirable to restrict the total intake of fluids to about one and a half litres in the 24 hours.

When the sleep has been disturbed our therapeutic measures often fail to succeed until better sleep is obtained. Sometimes the regulation of diet and rest will be found sufficient to restore the patient's sleep; in other instances a small dose of veronal or trional will be found temporarily useful. In severe cases one should not hesitate to give rest by the hypodermic use of morphine for two or three nights.

Hydrothorax, ascites or anasarca, if they exist, may often be quickly reduced simply by rest in bed and limitation of the diet and fluid intake as above mentioned. The patient should not be allowed to add salt to his food and should be given sufficient concentrated solution of magnesium sulphate or some other saline purgative early each morning to give one or two free movements of the bowels after the morning meal. In some instances diuretics are helpful; among them, theobromin sodium salicylate, given in one gram doses four times a day for three or four days, or synthetic theophyllin, especially in the form of soluble theocin (acet-theocin-sodium) in doses of three grains after each meal, act particularly well. The well-known pill of calomel, digitalis and squills performs good service in some of these cases.

Where the hydrothorax or ascites is very marked the chest or the abdomen should be tapped and the fluid drawn off; in obstinate anasarca drainage by means of Southey's tubes is occasionally helpful.

Nor should one forget the great value of venesection in selected cases. When the right heart, especially, is failing, the venous system markedly overfull as shown by the dilated jugular veins, and the engorged veins in the extremities and cyanotic lips and cheeks, the removal of 250 c.c. or 300 c.c. of blood by

phlebotomy at the bend of the elbow not only gives great comfort to the patient but is sometimes actually life-saving.

Turning next to the application of the principle of exertion in our attempts to improve the condition of the cardiac muscle we find three main sets of measures at our disposal:

1. Stimulation of the heart to greater activity by the administration of certain cardiac tonics;
2. Reflex raising of the blood pressure by stimulating the skin with gas bubbles and salt solutions in the form of the so-called carbon-dioxide baths; and
3. Stimulating the heart to increased work by muscular exertion.

Of the cardiac tonics, preparations of digitalis and of strophanthus so far outweigh all others in value that they alone in the present state of knowledge need seriously be considered. The supporters of pharmaco-therapy in myocardial insufficiency have no reason to blush so long as they can show results in treatment such as are obtainable by the judicious administration of the drug introduced by William Withering. In an address I gave last autumn before the Medical Society of Virginia (*Virginia Medical Semi-Monthly*, Jan. 27 and Feb. 10, 1911) I have discussed the indications and contraindications for the use of digitalis and strophanthus and have emphasized especially the value in certain cases of the intramuscular use of strophanthin.

In this country, as yet, too little attention has been paid to the importance of baths and mechano-therapy in the treatment of cardiac cases. Properly applied these physical methods of therapy are of very great value, though in the hands of the inexperienced they often do more harm than good.

Time will not permit me to do more than to refer in this general way to the principles governing the application of therapeutic measures to the treatment of the failing heart. These principles hold in the treatment of all forms of cardiopathy, including the inflammatory, the atherosclerotic, the fatty, the nephritic and the thyreotoxic varieties. Of course, the principles have to be applied in a somewhat different way in each of these great types of cardiopathy, and even in the domain of a single type the treatment must be individualized to the particular patient under observation. Any routine or schematic method of treating cardiac cases will, in many instances, be doomed to fail-



ure. In the therapy of cardiovascular disease, as in all other therapy, individualization must be the watch-word, and the condition of the patient as a whole, not simply that of his heart and blood vessels, must be carefully studied and the interrelation of the different organs kept in mind.

The bibliography of cardiovascular disease is growing very rapidly. Every few years new knowledge of a subject has to be correlated with the old and codified in the form of a special textbook; in the recent past two admirable volumes have been given to the profession, that of Dr. James Mackenzie, entitled "Diseases of the Heart," referred to at the beginning of this address, and that of one of my co-workers, Dr. A. D. Hirschfelder, entitled "Diseases of the Heart and Aorta," published by the Lippincott Company last year.

The current literature dealing with the heart and vessels has been made more readily accessible by two journals which devote themselves entirely to the subject. I refer to *Heart*, edited by Thomas Lewis (Shaw & Sons, London), to which the original articles dealing with cardiovascular disease published in Great Britain are largely contributed, and the *Archives des Maladies du Coeur, des Vaisseaux et du Sang*, published in Paris (I. B. Baillière et fils) under the guidance of Vaquez, especially valuable, not only on account of the original publications which it contains, but also for the very thorough centralblatt-like review of the cardiovascular literature of the world. To any practitioner especially interested in following advances in the study of the heart and the blood vessels I can strongly recommend the purchase of the books mentioned and subscription to the two journals named.

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### The Wassermann Reaction: A Preliminary Report Based Upon a Study of Six Hundred Cases.

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Ehrlich's<sup>1</sup> investigations on immunity brought out the interesting fact that when an animal was injected with the red cells of another species, the serum of the first animal became hemo-

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lytic for the cells of that particular species. Further study showed that hemolysis depended on three factors: (1) the immune body or amboceptor resulting from the immunization of one animal with cells of another of a different species, (2) the complement which occurs in greater or less degree in all serum, and is a very unstable body, being easily killed by heat or by standing, (3) the erythrocytes for which the amboceptor has a specific affinity. These three factors are known as a *hemolytic system*. It was found that on mixing erythrocytes with heated serum containing their specific immune body, the cells absorbed this immune body but that no solution of the cells took place until fresh complement had been added. On the addition of complement to cells which had stood for some time with amboceptor, and had then been thoroughly washed, solution of the cells was rapid and complete, while no trace of amboceptor could be made out in the washings. From this we see that the cells have a definite affinity for their amboceptor, and that the complement is necessary for the completion of hemolysis.

In 1901 Bordet and Gengou<sup>2</sup> discovered another interesting fact. They found that if an emulsion of bacteria known as "antigen," was mixed with complement and with the serum of the individual infected with the bacteria, that the immune body in this serum combined with the bacteria to absorb the complement. This could be demonstrated by adding to the above mixture sheep cells and an antishoop amboceptor. When this was done no hemolysis took place. The fact that no hemolysis took place demonstrated that the complement, though active when mixed with the patient's serum and bacteria, was no longer able to enter into combination with the antishoop amboceptor and cells to cause hemolysis. This is known as "complement fixation." When on the other hand a normal serum was mixed with the bacterial emulsion, no fixation of the complement occurred, for hemolysis took place promptly after the cells and their immune body were added. This indicated that the exciting factor of a disease had quite as specific an affinity for its resulting antibody as had the cells in the hemolytic system for their amboceptor, and also that complement was quite as necessary for their combination.

In 1905 Schaudinn and Hoffmann<sup>3</sup> announced the discovery of *Spirochaeta pallida* as the cause of syphilis, and in 1906



Wassermann, Neisser and Bruck<sup>4</sup> described a specific serum-reaction in syphilis. The technic of the reaction was based on the complement fixation phenomenon of Bordet and Gengou. As it was impossible to cultivate the spirochaeta in vitro, no pure culture of the organism could be used as antigen, but instead an extract of the liver of a syphilitic fetus was used because microscopical studies had shown that such livers contained great numbers of the spirochaetae.

The method is briefly as follows: A measured amount of the serum to be tested is mixed with complement (for this purpose the serum of a freshly killed guinea pig is used) and an alcoholic extract of a syphilitic liver as an antigen. Wassermann at first used a watery extract, but this has been abandoned both in Europe and in this country. This mixture is then incubated for one hour, and then an emulsion of sheep cells and antishoop amboceptor is added, and again incubated for an hour. The amboceptor used is the serum of a rabbit immunized to sheep cells. Each test reaction is controlled by a tube in which antigen has been omitted. This control tube must always show hemolysis. If it does not, either the technic has been faulty, or the serum itself contains a so-called anticomplementary body. When the reaction is ended, the rear tube or the control tube shows a clear red solution, and if the reaction be positive, the front (or test) tube will show no solution, the sheep cells remaining unchanged; if the reaction is negative the front tube will then show complete solution of the cells. At least one known positive and one known negative serum must always be tested as a further control for each set of reactions.

Naturally the announcement of this reaction caused much interest, and has led to a very large number of observations both as to its clinical value, and as to its biological characteristics. As is always the case numerous modifications of the technic were brought forward, mostly bearing the name of the modifier, and each succeeding investigator claimed greater accuracy or simplicity for his modification. In 1908 Bauer<sup>5</sup> showed that in a large proportion of cases, human serum of itself possessed hemolytic powers for the red cells of sheep, and recommended that in all cases where this native antishoop amboceptor occurred, the artificial antishoop amboceptor be left out as the reaction was carried through quite as well without it. Compar-

atively little attention has been paid to this interesting fact, which, when analyzed, has really a most important bearing on the Wassermann technic. Given a serum which already contains enough native antishoop amboceptor to carry out the reaction, it is certainly theoretically possible that addition of an artificial amboceptor will cause too much solution, and may lead to false results. It is conceivable that a weakly positive reaction could under these circumstances be transformed into a negative. Therefore Swift<sup>6</sup>, Kaliski<sup>7</sup> and others have added another control tube to their reactions. In this tube a very small amount of the patient's serum is put, and to this are added sheep cells and complement. If at the end of an hour in the incubator, complete hemolysis has taken place in this tube it is evident that there is enough native amboceptor to meet the needs of the reaction and therefore no additional artificial amboceptor is added. We have controlled a large number of our reactions in this way. Out of 635 reactions so controlled we have found sufficient native antishoop amboceptor in 133 sera, or in 20.9% of the cases. Furthermore, during the last three months we have done two reactions on such sera, one without adding amboceptor, and the other with the addition of the usual dose of amboceptor. Out of the total number of cases observed in this manner, there were 38 cases which gave a positive reaction when done by the Bauer method. Six of these 38 became negative, when the usual dose of artificial amboceptor was added. The reactions in these six cases were definite but not strong. Therefore it is apparent, that if the Wassermann reaction be not controlled by the Bauer modification a certain number of positive cases will be reported as negative.

The most interesting and perhaps the most perplexing discovery, in the relation to the complement fixation reaction in syphilis, arose from researches by Landsteiner and Stankovic<sup>8</sup>, Porges<sup>9</sup>, Noguchi<sup>10</sup> and others. They all showed that such substances as lecithin, or alcoholic extracts of normal non-syphilitic organs (heart, liver, etc.) could be used as antigen in place of the syphilitic liver extract with greater or less success. Noguchi has found that the lipoid bodies of normal animal tissues make quite as reliable antigens as the syphilitic extracts. Theoretically, this fact made the specificity of the reaction decidedly questionable, but has not affected the fact that all observers



have found a very high percentage of positive reactions in syphilis. Suffice it to say that at present the reaction cannot be classed as specific, if it be judged by the standard of the original Bordet and Gengou complement fixation reactions, for in these the antigen was always entirely specific for the disease tested. Whether the reaction is the result of some change in the body tissues and fluids caused by the toxins of syphilis, whether it is dependent on the actual presence of the spirochaetae in the body, we cannot at present say. No sound experimental evidence as to the cause of this Wassermann reaction has been as yet brought forward.

In the course of the investigation of the diagnostic value of the reaction it was found that in leprosy, frambesia and during the acute stage of scarlet fever a positive reaction was not uncommon, though in these cases a preexisting syphilis could be ruled out. At first sight this would seem to further weaken the reliability of the reaction but on further analysis it merely increases the interest of the matter, and it is especially interesting to note that frambesia is a disease caused by a parasite in many ways resembling the parasite of syphilis and that this disease has, like syphilis, a primary, secondary and tertiary stage; that leprosy is a chronic granulomatous disease of obscure origin, for in reality very little is known as to the nature of the so-called *lepra bacillus*; and that the etiologic factor of scarlet fever is also unknown. The occurrence of a positive reaction in these diseases naturally leads to the surmise that this particular phenomenon may be, indeed, a group reaction, depending on the presence in the body of organisms which belong to one class, or which are at least closely allied in their biologic effect. That the occurrence of the reaction in these conditions does not affect the diagnostic value of the reaction is obvious, at least for us in this part of the world. Frambesia and leprosy are practically unknown here, and the clinical differentiation between scarlet fever and syphilis is one that would never be brought into question.

It is evident that a final valuation of the reaction cannot be made until statistics have been collected from thousands of cases. A most important question is as to what diseases may give the reaction. Are there any in addition to those which have been mentioned already? If there are non-specific reactions, are they frequent? A final verdict cannot be obtained until a

large accumulation of statistical evidence has been examined. If positive reactions are found in practically no conditions other than syphilis, and if a large proportion of syphilitics in the various stages of the disease are found to give positive results, the reaction must be accepted by intelligent practitioners as a valuable aid in diagnosis and a guide to intelligent treatment.

For the majority of the cases which have furnished the material for this study we are indebted to the Dispensary Clinics of Lakeside Hospital, especially to the Dermatological and Medical Clinics, by the courtesy of Drs. W. T. Corlett and John Phillips, respectively; to the United States Marine Hospital, by the courtesy of Dr. C. W. Wille; to the Cleveland City Hospital, through Drs. E. P. Carter and C. W. Stone; and to many practitioners. For his critical assistance and helpful suggestions we wish to express our sense of deep obligation to Prof. G. N. Stewart, Director of the H. K. Cushing Laboratory of Experimental Medicine of Western Reserve University, in whose department the technical part of our work was done.

The report is a study of the results of 773 reactions, which have been made upon 646 patients. A number of reactions have been repeated, a fact which should add value to the study.

The variable factors in any statistical work are self-evident. A series of cases in which the clinical diagnoses have been made only indifferently by mediocre or careless observers can scarcely be compared with one in which the clinical side has been cared for by observing and experienced diagnosticians. Furthermore, the technic of various workers in carrying out so delicate a test depends upon a number of factors, including previous training, mechanical equipment, and the inevitable personal equation.

In the first place we shall call your attention to the results of many workers in non-syphilitic cases.<sup>14</sup> Presumably these are cases in which syphilis could be excluded:—

TABLE I.

	No. of Cases.	No. +	Percent. +
Swift .....	272	3	1.1
Noguchi .....	333	12	3.6
Bruck's collected cases (33 observers) .....	4,432	57	1.2
Bruck, Stern, Merz .....	596	2	0.3
Matson .....	313	1	0.3

From this table it may be seen that positive reactions do



occur in cases *presumably* non-syphilitic, but the number of cases is extremely small, ranging from three per thousand to 12 per thousand, excluding Noguchi's figures.

In our series we examined 17 individuals in perfect health in whom there was no suspicion of syphilis. All gave negative results. Furthermore we had 163 cases suffering with diseases other than syphilis, in which syphilis could be excluded with reasonable certainty. All were negative except one case of scarlet fever. This was examined during the acute stage, and was positive. The reaction became negative at a later period in the disease. In order to give a definite idea of the specific nature of the reaction we shall give a partial list of the diseases and the results of the serum examination.

TABLE II.  
THE WRITERS' SERIES.

Non-Syphilitic Conditions.	No. of Cases	Negative.
Carcinoma of various organs.....	8	8
Brain tumor .....	4	4
Tuberculosis, advanced pulmonary .....	11	11
"    knee .....	1	1
"    hip .....	1	1
Lupus .....	2	2
Arthritis deformans.....	1	1
Pernicious anemia .....	3	3
Splenomyelogenous leukemia .....	1	1
Chlorosis .....	1	1
Lymphosarcoma .....	1	1
Vincent's angina .....	1	1
Stomatitis, aphthous .....	1	1
"    ulcerating .....	1	1
Eczema .....	2	2
Tinea .....	2	2
Erythema .....	3	3
Diabetes mellitus .....	2	2
Cirrhosis of liver.....	2	2
Cholecystitis .....	1	1
Dementia praecox .....	1	1
Melancholia, involutional .....	2	2

A study of the reaction would naturally divide the cases according to the stage of the disease. The clinical diagnoses have been made with care by competent clinical observers, and cases in which the signs of syphilis *were doubtful have been relegated to a distinct class.*

*The primary stage* affords interesting but rather variable results. When there was an opportunity to follow the cases by repeating the reaction at frequent intervals, it has been the usual experience to obtain a positive result before the appearance of secondary signs. The assistance which this gives is

obvious. It is unnecessary to allow the patient to become saturated with the specific virus before starting mercury, or, on the other hand, to place him on what may be an uncalled for course of mercury simply "on suspicion."

The earliest reaction which has been reported is one by E. Lesser,<sup>11</sup> where the blood was examined and found to be positive eight days after infection. This finding was substantiated by the subsequent appearance of an initial lesion and of a roseola. Our earliest reaction was on the third day after the appearance of the lesion. Unfortunately, we had no opportunity to follow this case.

Ordinarily the reaction does not appear at as early a period as the spirochaetae may be found. Swift,<sup>12</sup> however, calls attention to the fact that if the lesion be in the mouth, the non-pathogenic mouth spirochaetae would render diagnosis uncertain; and further, that a lesion which had healed before the development of the secondaries would afford no opportunity for a hunt for organisms.

We have examined 19 cases of primary syphilis. (See Table III.) Of this number 16 were positive; three were negative. One case was negative at the third week, but the blood was taken again in the fifth week, when the reaction was positive. At this time there was a suggestive slight rash on the forehead. Another case was negative during the second week, but positive during the third. A third patient was negative at the third week. He was not seen again till the eighth, when the reaction was positive. The secondaries had not appeared.

TABLE III.

THE WRITER'S SERIES.—CASES DEFINITELY SYPHILITIC,

	Total No.	No. Positive.	Percent. Positive.
Primary .....	19	16	84.2
Secondary .....	69	69	100.0
Tertiary .....	100	92	92.0
Latent .....	111	70	63.0
Cerebrospinal .....	35	27	77.1
Paresis .....	7	7	100.0
Tabes .....	19	13	68.4
Congenital .....	17	15	88.2

Among our own cases of primary lues, the most interesting one was a man in middle life with an indolent sore of five weeks' duration on the lower lip, starting at the junction of the mucous membrane with the skin. He had been cut here by a



barber. The clinician said that the diagnosis lay between syphilis and beginning epithelioma. The reaction was strongly positive. The secondaries might have failed to appear, since mercury had been given.

*In the secondary stage* the results are much more striking. Here the proportion of positive reactions is extremely high, reaching 95 to 100% with many workers. That considerable clinical assistance is obtained is evident when one remembers the number and variety of skin lesions which may simulate syphilis, and the number of atypical secondary syphilitic manifestations which resemble other dermatological conditions.

This is especially true with women, in whom the initial lesion is not always easy to identify. We recall from our own series a woman with a suspicious rash. Her physician was unable to find a primary lesion with careful search. The reaction was positive. This finding was checked by the husband developing a primary sore later.

*With tertiary syphilis*, the number of positive reactions is almost, though not quite, as high. With our series of cases, positive reactions have been secured in 90% of cases examined. The aid to diagnosis is much greater in this period than in the secondary stage, for the tertiary lesions are more baffling and are differentiated with much greater difficulty than are the secondary signs. In this class of cases we have many conditions with which the internist is confronted—gumma of the viscera, syphilitic disease of the cardiovascular system, etc., as well as those which face the surgeon, including bone and joint lesions.

A striking case of late syphilis was one referred by Dr. H. G. Sloan. The patient presented a painless swelling of the testicle, an indolent ulcer of the dorsum of the hand, and paronychia. Syphilis was denied stoutly. The reaction was very positive, and the response to mercury immediate and rapid.

*Latent syphilis* is a question of great importance. We have grouped under this heading those cases in which there were no signs of active disease, but which either *gave a distinct history or showed unmistakable evidences of previous infection*. In viewing these figures it is to be borne in mind that the great majority of this class have had long mercurial treatment. This accounts for the fact that the percentage of positive results is lower than in the other stages.

The number of positive reactions is of great significance, however, when one stops for a moment to think that these patients would be pronounced free from disease on clinical grounds alone, were there no recourse to a serum test. In other words, approximately 50% of the cases of syphilis considered cured are in reality carrying an infection which is in temporary abeyance only, and may become active at any time.

To show that this conclusion is not evolved upon purely theoretical premises without pathological confirmation, we may cite Lesser's figures<sup>11</sup>. In over four years' experience in the autopsy room (in Berlin) he found visible evidence of visceral syphilis in 49% of subjects examined who had given a definite history of lues. In a series of cases examined by the serum reaction he found 46% positive. This points to the conclusion that in latent syphilis, so called, a positive reaction means that while the disease is not apparent on the surface it is still active.

Citron<sup>13</sup> indeed says that we should consider the reaction a symptom, and administer treatment until that symptom disappears.

*Hereditary syphilis* is a most interesting problem, but one which, from the nature of things, is as yet the least settled. Even now we have learned a great deal about this phase of the disease from the reaction.

Congenitally syphilitic children who show the obvious signs of the disease give an unusually high percentage of positive reactions. Our series shows 88.2%, while the results of other workers is shown in the following table.

TABLE IV.

	No. of cases	Positive
Noguchi's collected cases .....	125	94.5%
Noguchi's own cases .....	17	100.0%
Swift .....	14	86.0%
Kaplan .....	20	90.0%

The reaction has also shown us that Colles' law will have to be revised or at least interpreted in a new way. Examination of the mothers of congenitally syphilitic children, women who apparently had escaped luetic infection, has revealed that many of them have latent syphilis. This would seem to be a most important point, and is but a single instance of the aid which the reaction has rendered in the detailed study of this wonderful disease.



It is also very interesting to follow entire families with the Wassermann reaction, and to note the manner in which the disease has affected the different members. With the assistance of Dr. J. MacLachlan we followed a number of such families, and expect to prepare a report of findings within the near future.

Some of our most interesting cases have been those of congenital syphilis. One was a young woman of 28 years, of Jewish parentage, whose family history was absolutely negative. The only suggestive point was that the parents had been married five years before the first pregnancy. There were no miscarriages. This patient was the oldest child. She had a saddle nose, old interstitial keratitis, and necrosis of the long bones. The reaction was strongly positive. The interest lies in the fact that the reaction checked the clinical findings *in spite of the history*.

A similar case was one at the Charity Hospital Dispensary. A child of three years showed no stigmata of syphilis and the family history was quite negative. Nine months ago a swelling in the left thigh was opened in the hospital. Now there are many periosteal swellings, some suppurating. The reaction is positive.

*The diseases of the central nervous system* have been studied quite thoroughly. The reaction "has been of value in corroborating opinions concerning the relation of syphilis to tabes and general paralysis."

TABLE V.

Total of collected cases from 17 observers (Pearce <sup>14</sup> .)							
General paralysis				Tabes			
Blood		Spinal Fluid		Blood		Spinal Fluid	
No.	%+	No.	%+	No.	%+	No.	%+
630	81	424	85	721	65	89	68

Kaplan<sup>15</sup>, who has done an immense amount of work with neurological material, has reached the conclusion that the reaction is of much assistance in directing the treatment of tabes dorsalis. A negative result is a contra-indication to urgent treatment, while a positive result may be taken as a symptom of active infection and an indication for pushing treatment.

A negative reaction in a clinically definite case of cerebro-spinal lues should, however, not be accepted as an indication for withholding active treatment in this type of case.

The early diagnosis of paresis can be clarified by the Wassermann test, since there is scarcely a condition in which the percentage of positive reactions is so high. This is, we think, a most practical point, when one thinks of the difficulty frequently encountered in making an early diagnosis of this condition. We recall a recent case in which the clinical diagnosis of some who had studied it had been multiple sclerosis, but in which the neurologist's diagnosis of early paresis was confirmed to a certain extent by a positive Wassermann.

Thus far we have analyzed from our own cases those which are definitely syphilitic and those definitely non-syphilitic. The cases in which, on the other hand, syphilis could not be fairly excluded or, on the other, in which a negative history was given and the physical signs were open to question, have been placed in a separate division. This includes 70 doubtful cases. Of this number five gave positive results.

Two were arteriosclerotics in whom a history of syphilis could not be secured. One was a patient suffering with a tumor of the stomach; she had had at least one miscarriage and clinically, she showed much improvement under potassium iodid. Then there was an individual with a history of promiscuous living. He denied that he had had an initial lesion, but had had two attacks of gonorrhea, one lasting one year. About two years ago he had a reddish eruption over the entire body. The reaction was strongly positive. The possibility of an intra-urethral chancre would at once suggest itself. There was also a case of gout with a very vague history.

We recount these cases that you may be in full possession of all the data in our hands. They really carry no weight one way or the other.

If time permitted we might dwell upon the many applications of the reaction in the different specialities, but will refer to them but briefly. The ophthalmologists should find it of assistance in making the differential diagnosis of conditions affecting the cornea, particularly interstitial keratitis, the retina, and the disc, as well as disturbances of innervation of the ocular muscles (so often due to central syphilis). The laryngologist should receive aid in many cases of chronic laryngitis, and various conditions of the tonsils and mouth. The obstetrician might depend upon it in determining the probability of syphilis in expected offspring



and thus be able to prevent miscarriage. At present there is no necessity for employing a syphilitic wet-nurse.

A question of vital interest is the behavior of the reaction under treatment. Of course it is much too early for any one to draw final deductions from the facts at hand. Indeed, positive rules cannot be formulated until years have elapsed and until there has been ample opportunity to observe, for at least two generations, the offspring of luetic parents who had been cured to all appearances.

We have, however, already learned a great deal about treatment. Mercury is the only drug which has a marked, constant, and dependable effect upon the reaction. Potassium iodid influences it very little. Some writers report its disappearance under atoxyl and arsenophenylglycin.

From the standpoint of converting a positive Wassermann reaction to a negative, mercury is much more efficient when given by inunction or injection than by mouth. We have examined a patient who had had mercury by mouth for as long as *nine* years and who still gave a positive reaction. It has been not at all unusual in our experience to encounter patients who had taken by mouth either the bichlorid or protoiodid of mercury almost constantly for three, four, and five years and who still gave positive reactions. Furthermore these patients were in many instances extremely intelligent men who understood their own situation thoroughly and were making every effort to co-operate in their treatment. The mercury was often taken to the point of salivation.

Salvarsan may change a positive reaction to a negative, but our own experience (which coincides with that of other workers) is that eventually the reaction again becomes positive and remains so until further treatment is instituted.

We had the privilege of following for Dr. W. T. Corlett 13 cases which had been treated with salvarsan. Three of these were examined before the administration of the drug and not again for an interval of two or three weeks. The reaction was still positive. A fourth case received an intravenous injection in New York. The reaction was positive a few days later, also six weeks, and again eight weeks after injection. The remaining eight cases were examined once a week for several weeks and some have been examined since. Five remained positive throughout, the last serological tests being made on the

twelfth, the third, the fourth, the fifth, and the sixth weeks respectively after injection. One case with a very weak reaction became negative after a second injection of the drug. Another patient, who showed marked clinical improvement, became negative on the fifth week, but returned to positive and was still positive on the twelfth week. The last patient was the most interesting of all. His reaction became negative during the first week, but was positive the next week and remained so until the seventh week, when it became negative. He has not been examined since.

Our general impression from these cases has been that salvarsan has little permanent effect upon the reaction in most cases.

A rule for pronouncing patients cured, which seems excellent in the light of present knowledge, is to have the reaction done four to six weeks after the last dose of mercury. If negative, treatment is withheld and the reaction is repeated in one month, again after an interval of three months, and finally at the end of a year.

In summing up the present feeling in regard to the reaction as a guide to treatment, we can do no better than to quote Swift<sup>12</sup>:

"1. As soon as a positive reaction appears in primary syphilis, treatment should be instituted. The reaction, with the presence of *Spirochaeta pallida*, renders a diagnosis positive, and by starting treatment before the appearance of secondary symptoms a dangerous saturation with the virus will frequently be avoided, and the danger of the patient becoming an active distributor of the spirochaetae minimized.

"2. In the first three years of the disease treatment can be more rationally controlled, than by merely following the rule of a certain amount of treatment, with periods of rest. By means of frequent observations, in many cases, the disease can be controlled with a small amount of mercury, while others will require constant application to treatment.

"3. In the late latent period a positive reaction is an indication for further treatment, and, as a rule, treatment should be continued until the reaction becomes negative. This rule should, of course, be modified according to the condition of the patient. If he tolerates mercury badly, or presents other contraindications to treatment, the indications for the individual case must be



recognized and met. Perhaps some reactions will never yield, but it is in such cases that the prognosis is probably bad, and such patients that we may expect to go on to tabes or general paralysis. A persistent negative reaction is a good prognostic sign; a returning reaction is a warning that a relapse may be imminent, and is sufficient indication for renewed treatment."

### Conclusions.

Our conclusions, as far as conclusions are justified from a study of the literature and our limited personal experience, are that:

1. The reaction is not specific in the ordinary accepted sense of the term, but depends upon biochemical phenomena as yet not understood.

2. The test is one which is extremely delicate and must be performed with rigorously painstaking technic. The reading of the results is usually easy, but in certain doubtful cases is extremely difficult. For this reason repetitions of the examination are occasionally necessary for a definite opinion.

3. In this climate, a positive reaction is a specific sign of syphilis in at least 99 out of 100 cases. In the residue, syphilis usually is not to be completely excluded. In other words, a positive reaction is a definite symptom, more definite than any previously at hand.

4. A negative reaction carries much less weight. A single negative reaction *cannot be taken* as positive evidence against existing syphilis. With certain limitations, the more active the disease, the more likely is the reaction to be positive.

5. The results of the reaction are of great assistance in treating syphilis but should be interpreted by one of experience with both the clinical and the serological side of the question.

6. The test can never supplant competent and exhaustive clinical observation but can aid it greatly.

### REFERENCES.

1. Ehrlich, P.: Studies in Immunity, Collected by Bolduan, 1910, John Wiley & Sons, N. Y.
2. Bordet, J. and Gengou, O.: Annales de L' Institute Pasteur, 1901, XV, p. 829.
3. Schaudinn, F. and Hoffman, E.: Arb. a. d. k. Gesundheitsamte, 1905. XXII, S. 527.
4. Wassermann, A., Neisser and Bruck: Deutsch. med. Wochenschr., 1906, XXXII, S. 745.
5. Bauer, J.: Deutsch. med. Wochenschr., 1908, XLV, S. 698.
6. Swift, H. F.: Archiv. Int. Med., 1909, IV, p. 376.
7. Kaliski, D. J.: Archiv. Int. Med., 1910, VI, p. 205.

8. Landsteiner and Stankovic: *Centralb. für Bakt., Orig. Abt. I*, 1906, XLII, Heft IV.
9. Porges, O.: *Kraus and Levaditi's Handbuch der Immunitats Forschung*, 1909, II, S. 1162.  
Porges and Meier: *Berl. klin. Wochenschr.*, 1908, XLV, S. 731.
10. Noguchi, H.: *Jour. Exper. Med.*, 1909, XI, p. 84.
11. Lesser, E.: *Deutsch Med. Wochenschr.*, 1909, XXXV, 379.
12. Swift, H. F.: *International Clinics*, Vol. I., Twentieth Series.
13. Citron: *Handbuch d. Immunitatsfor.* (Kraus and Levaditi), Vol II.
14. Pearce, R. M.: *Arch. Int. Med.*, 1910, VI, 5, p. 478.
15. Kaplan, D. M.: *Journal of A. M. A.*, LV, p. 1952.

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## The Clinical Value of the Wassermann Reaction.

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The practical value of the Wassermann blood serum reaction as a diagnostic measure and as an index to therapy in the various manifestations of lues has been established. Sufficient work has been done by careful observers abroad and in our own country to thoroughly establish it as one of the most important diagnostic signs that we have in the study of lues today.

Not unlike every other diagnostic measure its real value depends upon a knowledge of its limitations and its interpretation in the light of clinical findings. To view it as an infallible test would be to give it credit for more than it is worth. It can be used only as a link in the chain of evidence in establishing a diagnosis. It should always be used in the light of clinical findings. It is not specific in the true sense of the term, as was originally thought by Wassermann. A specific antigen is not necessary as was claimed by the discoverer; however, it is conceded that a specific antigen gives a higher percentage of positive reactions.

Theoretically considered the reaction is thought to be due to an interchange between lipoids, hence any organ-extract rich in lipoids may be used as an antigen. Since the establishment of the Wassermann reaction many modifications have been brought forth in an effort to simplify the technic, none of which has taken the place of the original Wassermann reaction or is above criticism.

A positive result should never be given when the disease is not present. Only a few conditions other than syphilis but of protozoan origin give fixation of complement, e.g., leprosy,

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yaws, sleeping sickness and possibly a few cases of scarlatina. In the various manifestations of syphilis 80 to 90% of positive reactions are obtained. It is as reliable as the Widal agglutination test for typhoid fever. The more marked the clinical signs, the more marked the power to fix or deviate complement. It is the consensus of opinion of observers that the positive reaction is dependent upon the presence of active spirochaetae in the body: if this be true then Colles' law and Profeta's law no longer hold, for even though the mother be free from signs and symptoms she invariably gives a positive reaction; likewise the child of the syphilitic mother gives a positive reaction which disproves Profeta's law.

Säathoff, in a very extensive experience, reports a positive reaction in every case of active syphilis, so that with negative findings and absence of clinical manifestations he is inclined to positively exclude syphilis. It is a most useful diagnostic measure in determining visceral syphilis. Positive findings were obtained in cases of nephritis, cases of liver affection and cases of paroxysmal hemoglobinuria. The reaction may be a guide into unexplored regions in which clinical diagnosis fails, e.g., a young woman, giving a history of severe and persistent headache for a year with a subfebrile temperature but no findings that would create a suspicion of tuberculosis or syphilis, showed a positive Wassermann: this fact recalled a peculiar liver condition, which probably was syphilitic, in her husband several years before. In a case of supposed tuberculosis of bone in which a course of tuberculin had been given, a strong positive reaction threw light on the fact that the father had had a syphilitic spinal affection. Säathoff in making observations in all cases in his hospital service was amazed at the frequency of positive reactions which served to explain a number of obscure conditions. The Wassermann reaction not only elucidates old problems but opens up new ones heretofore unexplored. The reaction is of greatest interest when clinical observation and investigation have reached their limit.

Fischer and Meier in 1907 found that 65% of treated syphilitics and 81% of untreated syphilitics showed positive reactions. Out of 114 cases they found five syphilitics who showed negative reactions. All cases of hereditary lues showed positive reactions. None of their non-syphilitic cases showed positive results. Some of their cases after treatment were negative for from 14 days to

three months, when they again became positive and symptoms recurred. A positive reaction shows that the patient has syphilis while a negative reaction may not mean anything.

Kaplan, who has made observations in a large series of cases and who takes a very conservative view of the value of the test, claims that with proper technic and well balanced reagents it is possible to report correctly in 98% of cases. In his experience he obtained about 7% of negative reactions in positive sera, treatment excluded, while the Noguchi modification gave 8% of positive reactions in clinically well established non-syphilitic conditions.

Mayer and Proescher concluded from observations made on 1000 cases in 1908 that a normal individual never gives the reaction and that about 80% of syphilitic cases do. Negative cases clinically are invariably negative serologically.

Wassermann and Plant in 1906 found 78% of positive reactions in a series of 43 cases clinically diagnosed as paresis. These observations were made on the cerebrospinal fluid which gives a higher percentage of positive reactions than the blood serum in paresis. Citron found 79% of positive reactions in 43 cases of paresis and Fleischman reports 192 cases, 160 of which or 84% were positive. Marie and Levaditi in 39 paretics found 74% positive. Blaschko reports cases showing that the reaction is most positive when syphilis is most florid and that it decreases in its positiveness as the clinical evidences diminish. In 143 cases of metasyphilitic conditions, reported by various observers and collected by Noguchi, 90% gave positive reactions.

The percentage of positive reactions in paresis and tabes indicates that we must change our classification of these conditions from that of parasyphilitic or metasyphilitic affections and positively group them as diseases of luetic origin and, more than this, diseases in which there is still an active agent at work. Might we not then well consider these conditions the fourth stage of syphilis? If it be true that the Wassermann reaction is dependent upon the presence of antibodies resulting from active spirochaetae in the organism (which is the consensus of opinion of observers), then must it not be true that paresis and tabes are active syphilitic conditions?

Unfortunate individuals need not go through life uncertain whether or not they have this dread condition, for we have in the Wassermann reaction a reliable means of diagnosis in approxi-



mately 90% of the cases. Physicians can ascertain the results of active treatment and inform their patients accordingly. It is of great value in throwing light on sociological problems relative to the marriage of syphilitic patients, their future prospects and their offspring. Its value in determining the presence of syphilis in wet nurses cannot be overestimated. Citron says no one can be said to be cured who has not a negative reaction. The test has proved that we know comparatively little of lues. It has proved that we can get an infection from tertiary lues. We now know that monkeys may be infected from a gumma.

Diagnosis is of no value if it does not lead to a cure, and in this test we have a valuable means of knowing whether our patient has had sufficient therapy. Every case of clinically diagnosed or suspected lues should have a blood serum test, for two reasons, viz.: (1) to establish or strengthen a diagnosis and (2) to determine whether this particular case has specific antibodies which give a positive reaction and which can subsequently be used as an index to the efficiency of therapy. If in approximately 10% of clinically diagnosed lues a positive reaction is not obtained, subsequent observations to determine the effectiveness of therapy would be of no value unless specific therapy should stimulate the production of antibodies, as has been observed in a few cases.

Autopsies have shown that lues is the contributing cause of death in about 50% of syphilitic infections, which coincides with the percentage of positive reactions found in latent syphilis. The therapeutic test is valuable but falls short of being practical and scientific.

Different observers have found positive reactions in scarlatina, tuberculosis, pneumonia, typhoid fever, malaria, early measles, malignancy, diabetes, pernicious anemia, Addison's disease, cases treated for rabies and following anesthesia. A few careful observers have not been able to find fixation of complement in the foregoing diseases and my own experience leads me to believe that these results are largely due to faulty technic aside from the possibility of coexisting latent syphilitic conditions. Granting that such diseases might rarely give a positive reaction in the absence of lues, the value of the test need not be lessened thereby, for a positive reaction would be only ephemeral, passing off when the disease has run its course, as has been observed in a few cases of scarlatina.

In primary syphilis a positive reaction may be found in two to three weeks after the appearance of the lesion. The demonstration of *Spirochaeta pallida* in genital lesions is probably an earlier diagnostic measure and if one or both are found, treatment should be instituted at once. Some have advised early excision of the lesion in the hope of preventing the disease becoming constitutional. It is not however, reasonable to believe that the disease might be diagnosed early enough to warrant this procedure.

Swift found positive reactions in 40 to 70% of latent cases, depending upon the time since infection, the number of relapses, the amount and efficiency of therapy and the time since this was last instituted. Lesser found a striking similarity between laboratory findings and autopsy findings: in four years' autopsy experience in Berlin he found 49% of visceral syphilis in persons in whom a previous history of lues could be obtained; 46% of these gave positive serum reactions. This suggests that clinically the disease may not be recognized but is still active in some of the vital organs. Indeed, Citron goes so far as to say that the case should not be regarded as latent so long as the reaction persists. His reasons for such a contention are: 1. The constant finding of the reaction in manifest lues. 2. Untreated or poorly treated individuals show the reaction after many years while other bacterial antibodies begin to diminish in a week or month after the disease has ceased being active: if the lues reaction is present after ten years or more it must be due to the fact that there is a constant production of antibodies brought about by the specific organisms in the body. 3. Patients without symptoms who give a positive Wassermann reaction lose their reaction under specific treatment. He claims that we should consider the reaction a symptom, and so long as any symptom persists the process is not latent. It is hard to determine where the line should be drawn between latent and visceral syphilis. For the differential diagnosis between syphilis, tuberculosis and malignant disease this test is the strongest piece of evidence we have at our disposal.

Karewski of Berlin, who has had an extensive experience with the test in surgical diagnosis, considers it of great value. He says that a negative reaction has no diagnostic value but is useful in differential diagnosis. Any surgical case with an uncertain diagnosis should have a Wassermann test before any



attempt is made to operate. Citron says that most of the lues that comes to autopsy is not diagnosed, e. g., gumma of internal organs as the liver, heart, spleen and of the nervous system. At autopsy scars and infiltrations of former lues are found. Of all cases that came to autopsy under his observation at Berlin in the last five years 10% have been luetic. Of all cases admitted to the Berlin hospital 20% were syphilitic, consequently 50% of all syphilitics carried the process to the grave. In 52% of the cases in which a positive Wassermann has been found, old syphilis existed without clinical signs or symptoms.

The reaction will be of greater value if the clinician and serologist work hand in hand. The reaction gives evidence only of the infection and not of the character of the pathological lesion. Before performing the test one should ascertain whether the patient has passed through an acute febrile disease up to at least a month previously. If one observes the necessary precautions in regard to technic and the anamnesis then, in case of a positive reaction, it can be said with certainty that the investigated case is syphilitic. On the other hand if the reaction be negative syphilis cannot be excluded absolutely, but only with a probability in 90% of the cases in the absence of clinical findings.

The value of the reaction as an index to the efficiency of therapy is as follows: 1. The longer the syphilitic virus has existed in the body and the oftener it has caused relapses, the stronger and more constant is the antibody content. 2. The earlier mercurial treatment is begun, the longer continued, the more often repeated and the more efficient its application, the lower is the antibody content. It is a question what form of treatment is most efficient. Inunctions and intramuscular injections cause more changes than protoiodid by the mouth. More latent cases give positive reactions under protoiodid than with any other therapy. A negative reaction on a patient after three months' treatment does not signify that sufficient therapy has been instituted. Patients should have an examination of the serum from time to time. The majority well treated will give negative reactions; the minority that give positive reactions should be treated until negative reactions are obtained. It is this class of cases that probably show late manifestations of syphilis. Iodid of potash and the early arsenical preparations seem to have but little or no effect on the reaction. Neisser has observed that the earlier in the course of the disease treatment is begun, the

more probability there is that a negative reaction will be obtained after a course of treatment. When treatment was begun as early as possible 75% negative reactions were obtained, while if therapy were delayed for six months only 33% negative results were noted after a course of treatment.

Purckhauer reports the results of treatment in 168 cases at different stages of the infection, all of which were positive before treatment. Of 116 primary and secondary cases, 75% became negative immediately after treatment. Of 12 early latent cases four became negative. Of 15 late latent cases four became negative, and of 18 tertiary cases only two became negative. Of four cerebral cases only one became negative. The longer the infection has existed, the more stable the positive reaction becomes and the greater the difficulty in inducing a negative reaction by treatment. In some late tertiary and so-called parasymphilitic conditions a negative reaction is never produced, even by the most persistent and efficient treatment. Occasionally a case is diagnosed as syphilis and gives a negative reaction. After mercurial treatment for a while a positive reaction is obtained. This is thought to be due to a destruction of the spirochaetae whose endotoxins are thus liberated and stimulate the production of the antibody which is thought to be the substance that produces the positive reaction.

The percentage of complement deviated or fixed is an index to the efficiency of therapy. Bayly has by this means determined the progress under treatment. The reaction has shown that pills and suppositories are the slowest and least efficient forms of treatment with mercurial preparations; inunctions and intramuscular injections of soluble and insoluble compounds the quickest and most efficient. Harrison's instructive series shows the effect of treatment in 69% after one course of injections while with pills on the other hand 97% of cases treated for six months or less were positive and only 8.5% showed any effect of treatment. When the inunction method was used only 16.6% were positive after three months' treatment. Were inunction not so difficult to give and were the skin surfaces not so irritated by this method, it would seem to be the preferable way to administer mercury. Intramuscular injection is next in potency.

Brauer shows that a negative reaction is not alone due to mercury in the blood, for he demonstrated a strong positive reaction when mercury was markedly excreted in the urine;



and a negative reaction when the mercury excretion was weak or absent. He showed that a previous negative reaction may become positive in spite of a large quantity of mercury in the blood, and that a reaction which has become negative under this treatment may become positive in spite of mercury persisting in the urine.

Cases treated with salvarsan (606), become negative in from two weeks to two months, and many again become positive in a few weeks when there is a recurrence of clinical symptoms. Early reports of the efficiency of this preparation have undoubtedly been overdrawn. Insufficient time has elapsed and too few observations as to its therapeutic value in the various manifestations of lues have been made to permit of definite conclusions, but with the Wassermann reaction as an index to its efficiency it would seem to be less effectual than mercury properly administered. Nearly all authorities agree that in the future the treatment of syphilis, whether it be by mercury or arsenic, must be regulated by the Wassermann reaction. Since it is the consensus of opinion that about 10% of clinically well established syphilitic diseases do not give a positive Wassermann reaction, it is advisable or highly important that every case of lues, suspected or positively clinically diagnosed, should, previous to the institution of therapy, have a blood serum test so as to show in every case how much a subsequent test could be depended upon as an index as to the efficiency of the therapy. It must be borne in mind that a single negative result means only that the patient is reacting to therapy, and that a series of negative results must be had over a period of from three to six months after all treatment has been discontinued before the patient can be regarded as cured; even then, until another 20 years have elapsed, we cannot be absolutely certain that the disease is completely cured and permanently obliterated and that no late manifestations will occur. If, after a thorough course of treatment, the reaction still remains positive it means that a more vigorous course of treatment must be instituted. If we judge the efficiency of treatment by the period of time elapsing from the time of the beginning of treatment to the time of the results from treatment, the various forms of therapy are most effective in the following order: Salvarsan, mercurial inunctions, intramuscular injections of soluble and insoluble compounds of mercury, mercurial suppositories and mercury by mouth. A

few cases remain positive after three years' treatment; it is therefore obvious that no fixed time can be determined as to the necessary duration of treatment in the individual case. Three years is the shortest safe period and this must be prolonged if the Wassermann becomes positive. The percentage of negative reactions following salvarsan therapy is less than that following mercurial therapy, and of the negative results a greater percentage tend to become positive in a month or two after the injection of salvarsan than after a thorough course of treatment with mercury intramuscularly.

Our personal observations with the reaction extend over a period of 10 months, in which time we have tested 450 cases in hospital and private practice. On many of these cases two, three, four and five observations were made at different times, so that we have made at least 800 tests. We have not found a positive reaction in every case that gave a history of lues, but in every case in which active manifestations were present a positive reaction has been found in the absence of recent therapy. On the other hand we have not had a positive reaction in a single non-syphilitic condition. A constancy of the reaction has been found in cases in which observations have been made at different times. Positive findings have remained positive unless therapy was instituted, and negative findings have remained negative unless made negative by therapy, in which case they would become positive after the discontinuance of therapy. Positive reactions have been found in a few obscure conditions in which a definite history of lues was not obtainable.

Cases treated over an extended period of time with protoiodid of mercury by mouth have become negative after a course of treatment, but when therapy was discontinued for a month or two the reaction again became positive before clinical manifestations developed. One case of secondary lues which had been treated with protoiodid by mouth for a year was found positive; an injection of salvarsan was then made and a negative reaction, obtained eight days subsequently, has remained negative for a month. One patient with tertiary lues who for three years had had vigorous mercurial treatment with inunctions, intramuscular injections and protoiodid by mouth, was found positive, subsequent observations after the administration of salvarsan showed a positive reaction and no change in the lesion was discernible. One patient who gave a history of soft



chancre 18 years ago with no other recognizable manifestations, who had had no specific therapy, but who showed a fissure of the tongue and a glossitis, or rather geographical tongue, gave a positive reaction. After six injections of cyanid of mercury the fissure was healed. One case, clinically diagnosed as cerebrospinal lues, gave a history of infection 15 years previously which was treated for several years. Since then he has become a father of a family of healthy children. He gave a positive reaction; specific therapy was instituted; the symptoms abated somewhat and in six weeks the reaction was found negative. Observations were made on eight cases of congenital lues of which 100% were found positive.

Observations made at the City Hospital on 25 cases classed as suspected lues, clinically diagnosed lues and non-luetic conditions showed 30% of positive reactions. Ten of these were clinically diagnosed lues with secondary and tertiary manifestations. Seven, with and without treatment, were found positive. Three, found negative, were having specific treatment. One case clinically diagnosed chancroid was found positive. One case in the surgical division being treated for supposed varicose ulcers had a few old scars on the face and arm but denied infection. She was the mother of a family of healthy children, and gave no history of miscarriages. A positive reaction was obtained and the headaches and body pains improved under iodid of potash and mercury. In a series of 15 cases clinically diagnosed tabes and pseudotabes, 50% were found positive. Insufficient data in these cases does not permit definite conclusions but, roughly speaking, it would seem that patients with active symptoms and in the absence of recent specific therapy give a much higher percentage of positive reactions than do patients in the quiescent stage who have had a specific treatment. I believe that the high percentage of positive reactions reported in tabes by some observers is largely due to the class of cases selected and to the influence of specific therapy.

Of 125 cases observed in private practice, clinically diagnosed as primary, secondary and tertiary lues, tabes, paresis, progressive muscular atrophy, cerebrospinal lues, brain tumor, neurasthenia with indefinite history of soft chancre, paraplegia, hemiplegia, Hodgkin's disease, nephritis, arteriosclerosis, aneurysm, typhoid fever, pneumonia, pleurisy, cases of questionable diagnosis and normal cases, 24% were found positive. Positive

reactions were not found in a single condition in which syphilis could be excluded.

Ten selected cases of scarlatina in the second to the fifth week of the disease were found negative: observers who have found positive reactions in scarlatina have noted it most commonly from the second to the fourth week. Ten cases of diabetes mellitus were found negative. One case, in which a history of lues could not be excluded, gave a positive reaction during an attack of confusional insanity. Observations made on 30 selected cases of incipient pulmonary tuberculosis were negative. Four cases of incipient pulmonary tuberculosis were found positive, two of which had clinical manifestations in the way of congenital earmarks and mucous patches in the throat that earlier were thought to be tuberculous. Of the remaining two positive cases clinical manifestations of lues were not recognizable but questionable histories were obtained. In 12 ward cases in private hospitals and with various clinical diagnoses, two positive reactions were obtained, one of which proved to be cerebrospinal lues and the other an obscure condition in which lues could not be excluded. Thirty-five cases of idiopathic epilepsy were found negative. Fifteen cases of dementia praecox were found negative. Five cases of alcoholic insanity, manic depressive insanity, and organic brain disease were found negative. In 75 cases of idioimbecility; cretinism; Mongolian, microcephalic and macrocephalic idiocy; and feeble-mindedness, in none of which was a history of lues obtainable, ten gave positive reactions: of these one was an idioimbecile with congenital earmarks; eight others were imbeciles without luetic manifestations and one was a microcephalic idiot.

In a series of 81 cases of general paralysis of the insane, 81% were found positive either with the blood serum, cerebrospinal fluid or both: in these 81 cases approximately 150 observations were made at different times on the blood serum and cerebrospinal fluid. Cases once found positive remained positive, and cases found negative remained negative. One case which repeatedly gave a negative reaction with the blood serum gave a positive one with the cerebrospinal fluid. The constancy of the reaction gives one great faith in the reliability of the test and leads one to believe that if specific antibodies are once found they are always present unless changed by therapy. Cytological examinations of the cerebrospinal fluid made by Dr. K. S. West



and Dr. H. B. Corlett resulted as follows in 45 of the above cases. A positive Noguchi and Ross Jones globulin test was found in 40 of the 45 cases analyzed. Of the 40 cases all gave a positive Wassermann and an average lymphocyte count of 35 per c. mm. Of the five cases found negative with the Ross, Jones and Noguchi tests a negative Wassermann was also found and the lymphocyte count gave an average of 10 cells per c. mm.

### Conclusions.

1. The test should be used only in the light of clinical findings.
2. Its real value depends upon its interpretation and a knowledge of its limitations.
3. A positive reaction means syphilis (excluding a few non-syphilitic conditions that give the reaction). A negative reaction may or may not be of any value.
4. Variations in the percentage of positive reactions in the various manifestation of lues, as reported by different careful observers, is probably due to two factors viz: (1) Lack of uniformity of technic on the part of serologists, some making the test too sensitive others not sensitive enough. (2) The class of cases selected.
5. A single positive reaction obtained in every case of suspected or clinically diagnosed lues must not be regarded as conclusive without knowing the character of the work done by the serologist.
6. Its greatest diagnostic value is in obscure conditions and for differential diagnosis.
7. Every case of suspected or clinically diagnosed lues should have a Wassermann blood serum test for two reasons, viz: 1. To establish or strengthen a diagnosis. 2. To determine the efficiency of therapy.

I wish to express my thanks to the men who have encouraged me in this work, viz., Supt. C. H. Clark and Asst. Supt. K. S. West of the State Hospital, Dr. H. B. Corlett who has assisted me in the routine laboratory work, Supt. E. J. Emrick and Dr. F. L. Keiser of the State Institution for the Feeble Minded. Dr. Walter G. Stern, Dr. E. R. Brooks of the Warrensville Sani-

tarium and to the physicians who have given me encouragement by referring cases in private practice for serological examinations.

## REFERENCES.

1. Bayly: Quart. Jour. Med., Jan., 1911, 252.
2. " The Lancet, 1909, 1523.
3. Beneke: Berl. klin. Wochenschr., Apr., 1908.
4. Blaschko: Berl. klin. Wochenschr., Apr., 1908.
5. Brauer: Münch. med. Wochenschr., 1909, LVI, 551-532.
6. Bruck and Stern: Deut. med. Wochenschr., 1908, XXXIV.
7. Butler: Jour. Am. Med. Assn., Sept., 1908.
8. Citron: Berl. klin. Wochenschr., March, 1908, 518.
9. " Deut. med. Wochenschr., 1907, XXXIII, 1165.
10. " Berl. klin. Wochenschr., 1907, XLIV, 1370.
11. Cohn: Berl. klin. Wochenschr., May, 1908.
12. Eichelberg: Deut. Zeitschrift f. Nervenheilkunde, XXXVI, 319.
13. Fischer: Berl. klin. Wochenschr., 1908, XLIV, 151.
14. Fischer and Meyer: Deut. med. Wochenschr., 1907, XXXIII, 2169.
15. Fleischmann: Berl. klin. Wochenschr., XLV, 490.
16. Fleischmann and Butler: Jour. Am. Med. Assn., 1907, XLIX, 934.
17. Fox: Medical Record, 1909, LXXXV, 421.
18. Fraenkel: Münch. med. Wochenschr., Dec., 1908.
19. Harrison: R. A. M. C., London, 1910, XV, 52.
20. Jackman and Töpfer: Münch. med. Wochenschr., Aug., 1908.
21. Kaplan: Amer. Jour. Med. Sciences, July, 1910.
22. Karewski: Berl. klin. Wochenschr., XLV, 1908.
23. Ledermann: Deut. med. Wochenschr., Oct., 1908.
24. Lesser: Berl. klin. Wochenschr., Sept. 28, 1908, 1752.
25. " Deut. med. Wochenschr., March 4, 1909.
26. Litterer: Jour. Am. Med. Assn., 1909, LIII, 1537.
27. McIntosh: The Lancet, 1909, 1515.
28. Mariè and Levadite: Deut. med. Wochenschr., 1906, XXXII, 1796.
29. Matron: Medical Record, Aug. 29, 1909.
30. Mayer and Proescher: Arch. Intern. Med., July, 1908.
31. Michaelis: Berl. klin. Wochenschr., 1907, XLIV, 1103.
32. Mott: Brit. Med. Jour., 1909, 1403.
33. Mushame: Berl. klin. Wochenschr., 1908, XLV.
34. Neisser: Berl. klin. Wochenschr., 1908, XLV, 1253.
35. Noguchi and Moore: Jour. of Exper. Med., 1909, XI, 604.
36. Nonne: Jour. Am. Med. Assn., Aug. 28, 1909.
37. Power and Murphy: Vol. III of System.
38. Purckhauer: Münch. med. Wochenschr., 1909, LVI, 698-702.
39. Saatoft: Münch. med. Wochenschr., LVI, 1985-2040.
40. Schumacher: Deut. med. Wochenschr., Nov. 4, 1909.
41. Smith and Conde: Brit. Med. Jour. 1909, 198.
42. Swift: Arch. of Inter. Med., Dec., 1910.
43. Wassermann: Berl. klin. Wochenschr., 1908, XLV, 562, 874.
44. " Deut. med. Wochenschr., 1907, XXXIII, 1165.
45. Wassermann and Plant: Deut. med. Wochenschr., 1906, XXXII, 1796.



## The Value of the Wassermann Reaction from the Viewpoint of the General Practitioner.

By W. O. OSBORN, M. D., Cleveland.

The discussion of the various papers on the Wassermann Reaction, at the March meeting of the Clinical and Pathological Section of the Academy of Medicine of Cleveland\* was of such a critical nature that it seems to me, our local workers with that reaction may have failed to appreciate how cordially glad the rank and file of the profession really is, that we can have this valuable test done here.

It seems scarcely fair to doubt, after the records of the last few years, that this reaction is able to give very positive evidence of either latent or symptomatic syphilis in over 90% of the cases in which its aid would be likely to be sought. It seems to me that it is of as little concern to the clinician, that it be a biologically specific reaction, as that he should know certainly how mercury, iodine and possibly arsenic, cure the disease, before he consent to use any one of these.

Of course we are all hoping for the day when the recognition of the spirochaeta in the initial sore, and the sterilizing dose of salvarsan or, better, an immunizing serum will prevent the development of the Wassermann reaction. But for this generation of physicians, and the next, there will be the great army of active and latent syphilitics; those previously ill treated, well treated and untreated, whose motley woes will cry out for diagnosis and relief. To all these I believe the Wassermann-Bruck reaction is destined to be of great value in helping to clear up the uncertain diagnoses, and in guiding as to duration and intensity of treatment. If it fail us occasionally in establishing the syphilitic origin of some obscure malady, the comfort to the practitioner, in that he has searched the blood as well as the other organs and tissues of the body, ought to be accounted as not among the least of its benefits.

In view of a recent experience, I feel that we should use the cerebrospinal fluid also in cases with nervous symptoms before resting reassured after a negative Wassermann with the blood serum alone, for while an increased cellular content of the spinal fluid is, in certain cases, almost pathognomonic of a previous syphilis, if a positive Wassermann with this fluid accompanies

\*See page 282, 287 and 374.

the lymphocyte increase it adds the finishing diagnostic touch.

Of course it may be argued, and justly, too, that the less one's diagnostic skill, the more he seeks to rely upon some laboratory test to correct his wavering judgment; and, as I understand the workers with this reaction expressly warn us, we certainly should not allow a negative result to prevent our instituting adequate treatment when the signs or history are as nearly positive as human judgment can estimate.

In those cases, however, in which there is a doubt, how much more comforting and controlling is the record of a positive Wassermann reaction than the doubt-producing "therapeutic test!" In the latent cases—those patients who deny or are ignorant of previous infection, and especially those who have been through active symptoms, and in whom the lesions have apparently succumbed to successful therapy, and that therapy has been prolonged sufficiently to warrant the hope of complete eradication of the disease—it seems to me a reasonable hope that the Wassermann test will offer more reliable judgment as to the needs of the patient than anything else that can be done. Of course its value presupposes experience and judgment in the interpreter of the test, but probably no more than that required by the interpreter of history and signs; and in the latent cases it offers as yet the only indication of the condition of the syphilitic.

I suppose I have been about long enough in practice to have some of my earlier syphilitic chickens, so to speak, come home to roost, and they have called my attention forcibly to the question of what is adequate therapy for this dread disease.

Until lately, we have been much assured that the only adequate therapy is mercury by hypodermic. Salvarsan threatened to supplant it for a short time, but from what limited reading I have done it seems to have failed in that respect at least.

Fournier has always claimed, I believe, that the hypodermic method, while valuable, was not necessary, and hence not to be insisted upon. I think C. F. Hoover's testimony, as to the result of hypodermic and mouth treatment, is very interesting. It means, it seems to me, that he has had disappointing recurrences, even after the much vaunted hypodermic method.

This raises the question, in connection with Lesser's statistics of active syphilitic lesions in 50% of known cases of syph-



ilitics coming to autopsy, as to whether syphilis is ever cured. With the vegetable antisypilitics long since disposed of as not specific at least, and with the various arsenical preparations now claiming specificity, are we to claim, or admit the claim, that there is any specific remedy for the disease? The Wassermann reaction seems to show mercury to be most nearly the specific, and this agreement with long clinical observation should be accounted, I think, not one of the least of the proofs of its value.

Its evidence that the protoiodid treatment seems least adequate is probably due to two causes: first, the routine use of that salt in the two or three decades preceding the last one; and secondly, its inadequate use, as Fournier claims that less than one and one-half grains daily, for the adult male, is inadequate. I think the routine practice of most of us in the latent period, doubtless influenced by the elder Keyes' so-called tonic method, has been to give not over one-half of that amount. But I am inclined to believe that we shall find in the next few years, a considerable increase of recurring lesions and recurring Wassermann reactions also after hypodermic treatment, now that the cases treated in that way have increased in number.

The neurologists have complained for a long time of the inadequacy with which syphilis is treated by the general practitioner, but C.-F. Hoover's testimony as to discouragements following the hypodermic method and Lesser's postmortem records, doubtless largely from the dispensary and hospital class who have probably had much hypodermic or inunction medication, would seem to show that there are other factors than the general practitioner's mouth administration. These factors doubtless are, as with other infections, the virulence of the organism and the relative immunity of the patient.

Of course the carelessness and indifference of patients is a large factor in the poor showing of our therapeutic efforts, and it may be that the Wassermann test will be a help in the case of our more intelligent patients, in keeping them up to the necessity of adequate treatment. I believe it can be a great aid to treatment by individualizing it, rather than leaving us satisfied with having "touched the gums," or carried out a certain number of injections, or inunctions, or months of medication by mouth.

I must say that Ehrlich's conception, the finding of a spe-

cific bactericide for every infecting agent, does not appeal to me as so reasonable as the developing of an immunizing serum, search for which is doubtless being diligently pursued. But meanwhile, in spite of the fact that the Wassermann does not seem to be a specific reaction, and that we do not understand it, nor hemolysis, any more than we understand the action of mercury or potassium iodid, it seems to me that it has proved at least as specific as they have proved to be, and I, for one, want to thank C. L. Cummer and R. Dexter, as doubtless many want to thank W. C. Stoner, for the immense comfort they have been to me, in helping me urge and insist on continued treatment.

In several cases their findings have been of very great value to my patients, both in a negative, as well as in a positive way. And after all the best that our patients can ask, is that we avail ourselves of all recognized means of securing the earliest possible diagnosis and the greatest possible prospect of cure. The first demonstration of its value I saw in Vienna in June, 1908.

A woman had journeyed from New Haven to her old home in Austria, for the diagnosis of an enlarged, hardened and nodular liver. She had been a frequent visitor to the Vanderbilt and other large clinics of New York, with no definite diagnosis or therapy resulting. A positive Wassermann solved the problem of diagnosis.

In the following case its first great benefit to me came in May, 1910. A patient with syphilis of 12 years' standing had taken protoiodid and grey powder, almost continuously for five years after his infection. In addition, the occasional ingestion of potassium iodid had been tried, but it always so greatly irritated a chronic acne that, in the absence of necessity, it was never given long. Only once in the six years of my acquaintance with him professionally, had any signs of syphilis occurred—a gumma of the skin, which yielded promptly to potassium iodid, but for which another course of two months of protoiodid by mouth was carried out. In May, 1910, this patient suddenly developed a partial aphasia; he could think of the right word but could not speak it. Nothing else in the eye grounds, pupillary or other reflexes, movements or sensation showed any disturbance. After three days I obtained blood by painfully milking it from the lobes of both ears, sent it to Swift, in New York, and had a report of a positive Wassermann in two days more. Meantime the aphasia had all cleared up, but I had in addition to the previous history the positive confirmation that therapy, vigorous and prolonged, was needed. After eight months of bichlorid, at first hypodermically, later by mouth, and a total of four months of potassium iodid in doses ranging from 45 to 120 grains daily; after an attack of very temporary but definite right sided hemiparesis following a game of tennis one hot July



day; and after going for the month of January without therapy, his heart, and I assure you mine, were gladdened by the report of a negative Wassermann early in February, 1911.

This case I expect to treat through April with bichlorid by mouth, and then have another Wassermann done in late May.

In Case II, one of multiple gummata that was shown at the Section meeting, the possible value of a Wassermann test is shown more by its early absence than by its later exhibition. This patient, in September, 1905, was in one of our good Cleveland hospitals for three weeks, with fever and joint pains but with no definite diagnosis or adequate therapy. In early November she came to me with only a fading rash, that I felt must be syphilitic, but in the absence of other confirming signs, I dared not doom her to prolonged treatment. Although seen weekly and examined with complete exposure, not until March, 1906, did some vulvar mucous patches appear. Within two days I had her at another hospital, with the preceding months' history and my diagnosis of syphilis, but so rapidly had the lesions at the vulva disappeared, that treatment was not begun until a month or two later, when I made it a personal matter with one of the staff to see that treatment was instituted. This was interrupted twice, during the two months' remainder of her stay in the hospital, by a tonsillectomy and appendectomy with prompt recovery from each.

Not until ten months after her infection was continued treatment begun, and continued for three years, protoiodid in  $\frac{3}{4}$  grain daily doses predominating and grey powder in three grain daily doses filling in the intervals. With no signs or symptoms for over three years, it seemed safe to allow her to discontinue treatment. How comforting to me, in controlling my wavering judgment, would the Wassermann test have been in the fall of 1905, and how valuable, doubtless, to the patient! How invaluable to the patient in the summer or fall of 1909, to have had proof from the blood serum that further treatment was necessary! For just one year after discontinuance of treatment, rheumatic-like stiffness and soreness developed in the legs, and by early August there were bright red, hot, raised patches on the legs and lower thighs. While some were over the shins and tender as the syphilitic nodes there are, others were distinctly not connected with bone or periosteum, and with the history of residence on muck celery land, the possibility of a rheumatic and erythematous origin was entertained, and salicylates and Goulard used. One week failed to show satisfactory results and another week of potassium iodid and bichlorid seemed to give a convincing "therapeutic test." The Wassermann was invoked and proved positive. But after complete disappearance of the lesions in September, and after four months of bichlorid by mouth, from 1-10 to 1-7 grain daily, and two, two-week courses of one dram inunctions, their recurrence in January and again in February on the buttocks, thighs and legs, after apparently complete disappearance, would certainly have made me waver had I not had the confirmation of the Wassermann test.

This case will have bichlorid and potassium iodid continued for several months.

Case III was at the head of the financial and office end of a manufacturing business until September last. His associates had noticed a little irritability of temper during August. He, himself, gave up September 10, with the statement that he couldn't sleep and that the business wasn't going right. Careful examination failed to show any gross signs of disease, unless I failed to notice, at that time, a sluggishness of pupillary reaction to light. His wife and three children, the eldest, nine, had been under my professional care for that nine years, and had always been well. Not until a week or two later did I recall the existence of a dilated pupil ten years before, of which I had learned only in a social way and which, he had told me at the time, "the doctor thought was due to something, but he knew it wasn't." Consultation with the oculist who treated the eye ten years before, showed a very inadequate history, but a definite recollection of his belief in the luetic origin of the iridoplegia and of his ordering some short period of antisyphilitic treatment. During the month of October no treatment was given, my patient varying between country and city with an occasional return to his office. Twice I had urged a hospital residence for a few days, hoping to get blood for a Wassermann test and spinal fluid for examination, but it was refused. Finally in early November, with pupils equal but definitely sluggish to light, though the eye ground seemed normal to W. E. Shackleton, a Wassermann test and spinal puncture were insisted on. The Wassermann was positive both with blood and spinal fluid and the number of lymphocytes was greatly increased. The day before the fluids were aspirated, he returned from a week in the country, much depressed. The next morning he greeted me with the statement that he felt all right and wanted to go to his business. After the lymphocyte count, and even before the Wassermann could be reported, bichlorid in  $\frac{1}{4}$  grain was begun hypodermically, and when the positive Wassermann result was known, potassium iodid was begun. But with each day and dose of medicine, a confusional insanity developed, and in a month's time, he was dead of an acute pneumonia, induced by efforts at artificial feeding. Autopsy showed slight adhesion of the dura to the skull over the frontal lobes, firm adhesion of the two sides of the longitudinal fissure from its base to near its summit, and yellowish turbidity of the subarachnoid fluid over the whole convexity of the cerebrum in its anterior two-thirds. Dr. Edwards has not been able to discover spirochaetae in the tissues, but in the absence of a febrile course or tubercles and with the positive Wassermann, syphilis seems the certain diagnosis.

I like to feel that, with so extensive disease, therapy begun even in September would have been inadequate, but I wish I had had the results of the lumbar puncture and Wassermann test in September.

Case IV is that of a young man of worrying disposition whose symptoms had grown on him for the past year. Business had been rather unsettled and disquieting, but even during that time a considerable legacy and continued pleasant home relations with wife and son, left really



nothing of this world's goods and pleasures to be desired. However, he gradually found that he hated to get into a crowd or to meet his old friends. Examination in late December, 1910, showed slight dilation of the left pupil, but some other signs from a blood count and slight prominence of the eye-balls suggested a possible thyroid disturbance; thyroidectin and nervines were therefore ordered. At the end of ten days he reported his nervousness as increasing and I told him to come at once for examination. Dr. W. E. Shackleton confirmed slight anisocoria and we both agreed that the reaction of the iris was also slower in the left than in the right eye. There had been a previous history of venereal disease, but only gonorrhea and suppurating bubo had been diagnosed and treated. He knew of no syphilitic signs or symptoms, and in my professional care of him and his family for eight years there had been no occurrence suggestive of syphilis. The Wassermann test in this case was negative and thyroidectin and nervines were continued. Meantime he kept at business and, on the whole, was feeling better, mingling with his friends at the club again and getting a deal of pleasure running a new automobile. He was on my mind, however, and in March I sent for him again. Dr. W. E. Shackleton examined the eyes thoroughly and concluded nothing but a nuclear lesion could account for the pupillary change. Dr. C. F. Hoover looked him over, minimized the significance of the pupillary change, but added a tremor of the tongue to the scant findings of the anamnesis and physical examination. We both agreed upon the desirability of a lumbar puncture. It yielded a clear fluid which by the pipette method showed no increase of cells, but on centrifugalizing it the sediment showed about 50 lymphocytes to the field and confirmed our worst fears. The Wassermann, done with cerebrospinal fluid, was negative with use of 0.1 c. c. but frankly positive with the use of 0.2 c.c. and 0.3 c.c. added the finishing touches to what we hope is a fairly early diagnosis, though the possibility of a paresis beyond recovery, haunts me.

This case will have hypodermics of biniodid  $\frac{1}{4}$  to  $\frac{1}{2}$  grain daily for six weeks, a rest of a month and another six weeks of hypodermics and then we shall see what the cerebrospinal fluid shows as regards cells and the Wassermann reaction.

310 Osborn Bldg.

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### A Case of Ruptured Ectopic Pregnancy; Streptococcus Infection of the Pelvic Cavity and the Ectopic Sac: Recovery.

By HUNTER ROBB, M. D., Professor of Gynecology, Western Reserve University, Cleveland.

The combination of a ruptured ectopic pregnancy with a streptococcus infection, followed by the recovery of the patient, is unusual in my experience at least.

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*Read before the Lakeside Hospital Medical Society, Feb. 23, 1911.*

A single woman, aged 24, first came under my observation Feb. 24, 1910, complaining of dull pains in the lower abdomen. She also had a slight elevation of temperature. She gave a history which briefly was as follows:

Six weeks before she was taken sick she slipped on the pavement. Immediately following this accident the menstrual (?) flow appeared, accompanied by a severe pain in the right lower abdomen. The menstrual periods had always been regular with the exception of the one in December, which had been delayed about a week or ten days.

It was learned that the patient had suspected that she might be pregnant and that she had gone to an individual who had applied electricity to the cavity of the uterus in order to produce a miscarriage. Shortly following this procedure she had evidences of an infection as shown by some fever, but after a week's time she seemed apparently well again. Shortly afterwards she had a fainting attack which was followed by a sharp pain in the lower abdomen. She was now obliged to remain in bed on account of the pain in the lower abdomen and the slightly febrile state.

By the bimanual examination I could make out that the uterus was enlarged, and at the right cornu of the uterus I felt a rather firm sensitive mass about the size of the fist. I advised that the patient be sent into the hospital for a vaginal incision or an abdominal section. The attending physician suggested that the condition might be a ruptured ectopic gestation, in which opinion I concurred. I also thought that in all probability there was present an infected tube and ovary.

She was admitted to the Lakeside Hospital three days later, and on March 1, we dilated and curetted and irrigated the uterus and opened and drained the cul-de-sac. About three ounces of blood and necrotic tissue were removed from the enlarged and softened uterine cavity. When the cul-de-sac was opened there was a gush of over a pint of dark fluid blood containing some clots with a few shreds of tissue. The smears and growths which were made from the material from the uterine cavity and the cul-de-sac showed a pure streptococcus infection.

After the operation the temperature fell to about normal and varied from 99° to 101°F. until the seventh day, when it suddenly rose to 103.5°. It fell again to about normal on the ninth day and remained so until the twelfth day when it suddenly went up to 104°F. and the pulse to 140 per minute. We thought that the pelvis was not being drained well enough, so we at once reopened and irrigated the cul-de-sac and re-applied a more extensive gauze drainage. The temperature following this procedure rose to 105°F., but the pulse dropped to 120. The same afternoon, however, with a similar temperature the pulse was 160. We then inserted a hypodermic needle into the somewhat indurated area that could be felt in the right lower quadrant of the abdomen and drew off a few drops of blood. This blood showed numerous streptococci. As her condition was undoubtedly becoming worse we decided to open into the mass through an abdominal incision and thus to establish abdominal drainage. This was done under nitrous oxid gas anesthesia. After in-



cising the skin and facia we opened into a sac which contained some bloody fluid and a considerable amount of well organized blood clot. In all, the whole mass was about the size of a closed fist. Swabs taken from the fluid and from the material removed at the time of the operation showed the presence of numerous streptococci.

Immediately after this operation the temperature rose to 106°F. and the pulse varied between 150 and 158 for the next eight hours. The temperature for the next four days was between 103.5° and 105.3°F. and the pulse between 136 and 160. The temperature was generally about 104°F. The temperature then gradually fell, and on several occasions went up to 104.8°F. in the evening. For several days following the abdominal operation the patient showed symptoms which suggested a postoperative insanity. This, however, slowly but entirely disappeared. On the twenty-ninth day following the abdominal operation the patient was sitting up, and the convalescence from then on was uninterrupted.

The points of interest in this case are: (1) Recovery following a ruptured ectopic gestation with a streptococcus infection of the sac and the peritoneal cavity, with a patient so alarmingly ill. (2) The presence of the indurated mass in the right lower quadrant of the abdomen which suggested an inflammatory condition, although in consequence of the finding of the streptococcus in the cul-de-sac and the cavity of the uterus, an abdominal section seemed to be inadvisable at the time of the first operation. (3) The finding of streptococci in the fluid aspirated from the abdominal mass, showing that the peritonitis was spreading and calling for an immediate abdominal operation.

*702 Rose Building.*

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## Four Cases of Sarcoma of the Nose and Throat Treated with Coley's Toxins.

By SECORD H. LARGE, M. D., Cleveland.

Sarcoma of the nose and throat is generally fatal unless the disease is recognized early enough, so that the growth together with the lymphatic glands can be entirely removed.

I wish to report four cases of sarcoma; two beginning in the nose and extending to the throat; one beginning in the throat and extending into the nose, and the other beginning in the faucial tonsil, and extending to the lymphatic glands and the surrounding structures.

Case 1. Mr. R., aged 19, was referred to me by Dr. Mary M. Battles, Ashtabula, O. The patient complained of inability to breathe through the left nares. He first noticed this difficulty about four months previous to my seeing him. The family history was negative. On examination there was found a large tumor completely filling the left nares, and extending into the postnasal space which it completely filled. There was great prominence of the left eyeball but no increase in its tension.

The ophthalmoscope showed a beginning optic neuritis in the left eye. On probing the growth, it bled very profusely. A small specimen was removed for microscopic examination, and it proved to be a round cell sarcoma. I advised immediate operation as the patient was beginning to have severe pain in the orbit.

I received permission from the family and the patient to remove the eye, as the growth had so extensively invaded the orbit. Under ether anesthesia, a resection of the superior maxilla was done along with the enucleation of the eye. The growth had invaded all the sinuses of the left side and had extended back into the cranial cavity.

Two weeks following the operation, injection of Coley's toxins was begun, and for two months it seemed to hold the growth in abeyance. During all this time the patient was entirely free from pain and insisted on returning home. His family physician kept up the injections and four months after the operation he informed me that the tumor was growing very fast, and two months later the patient died. The last two months he had excruciating pain, and had to be kept under opiates practically the entire time.

Case 2. Mr. L., aged 18, was referred to me July 22, 1907, by Dr. H. Pomeroy, of Cleveland.

The patient complained of inability to breathe through the left nares, which had lasted about two months. The family history was negative. Examination showed a large tumor, situated in the postnasal region and practically filling its left space. An operation was advised, to which the patient readily consented.

Under ether anesthesia the soft palate was split, and with curved chisels the growth was removed; it seemed to come away in toto. It had its origin from the periosteum covering the basilar process of the occipital bone.

The growth was very hard, and the bleeding was at times alarming, but with firm pressure was controlled. Upon microscopic examination, the tumor proved to be a round cell sarcoma. The wound healed readily, and the patient returned in two months to his college in the East. In three months he returned home with recurrence; this time the growth was larger than ever, as it now had invaded the soft tissues of the nose. Practically the same operation, only more extensive than at first was performed. Two weeks later (Jan. 12, 1908) injections of Coley's toxins were begun. The first injection of one minim in distilled water was made in the deep structures of the buttocks. There was no reaction and the next day, with a long needle,  $\frac{1}{2}$  minim was injected into the tissues round the origin of the growth; one hour following he had a severe chill which lasted half an hour. I saw him immediately after the chill, his temperature was 105° F. pulse 110. Next day he developed an acute otitis media, which called for a paracentesis.

The trouble in the ear subsided in about ten days, after which, another injection of  $\frac{1}{4}$  minim was made in the same place as before. He again had a chill lasting about 20 minutes, following which his temperature was 103.5° F. and his pulse 100.

Two months after the operation a small growth, the size of a marble,



was noticed in the old pharyngeal scar. The toxins were then injected directly into this growth every third day, with the result that the tumor entirely disappeared. On June 9, 1910, a small growth was found on the lateral wall of the pharynx. This was removed and proved to be sarcoma. Injections were continued as before, and kept up until Dec. 3, 1910, when they were discontinued as there was no evidence of any return of the growth. The patient is in his first year in medicine at W. R. U. Medical College, and a favorable prognosis has been given.

Case. 3. Mr. K., aged 45, was referred to me by Drs. P. S. King of Alliance, O., and E. G. McCormick of Waynesburg, O., on July 12, 1908.

The patient first noticed a difficulty in breathing about six months ago. He was unable at the time of examination to force any air through either nares. Upon examination, there was considerable discharge of bloody mucus. A growth completely filled both sides of the nose. It was glistening and very vascular; in fact the least touch of the probe caused a profuse hemorrhage. The ophthalmoscope showed a double optic neuritis. Both eyes were prominent. Postnasal examination revealed the postnasal space entirely filled with the growth. A small section was removed for microscopic examination, and it proved to be a round cell sarcoma. The case was certainly an inoperable one. I advised his family physician to use Coley's toxins and after a month's injections the patient was able to breathe through either side of the nose and seemed to be improving. At the end of three months the family objected to the injections as they made the patient so sick. He then began to have severe headaches and returned to us for relief. The injections were again tried. They did not seem to have any effect on the size of the growth, but the pain was greatly relieved. Death took place from cerebral complications.

Case 4. Mr. A., aged 35, was referred to me on account of a large tumor in the faucial tonsil. The cervical glands and the surrounding structures were very much involved. A section was removed for microscopic examination, and it proved to be a sarcoma. The entire tumor and all the superficial and deep glands of the neck were removed. The x-ray and injections of mixed toxins were kept up for three months. At the end of six months the tumor recurred in the scar and the glands of the mediastinum. The patient died at the end of nine months from the date of operation.

From these four cases I think we are justified in drawing the following conclusions.

1. Unless these cases are seen in the early stage, operation, as a rule, is unsuccessful.
2. As radical an operation as possible should be performed.
3. The injection of Coley's toxins should be begun immediately after the operation and the x-ray should also be used.
4. In inoperable cases the x-ray, radium, and Coley's toxins are practically the only therapeutic means we possess.

# The Cleveland Medical Journal

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## EDITORIAL

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### Edward Fitch Cushing.

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On March 23, 1911, Dr. Edward Fitch Cushing passed away after a brief illness. Hardly more than a year ago we mourned the loss of Dr. Henry Kirke Cushing at a ripe old age, and now the community is shocked at the death of his gifted son in the prime of life and at the height of his usefulness.

The Cushing family, of old and distinguished New England stock, descended from Mathew Cushing of Hingham, Mass., has been identified with the medical, civic and social history of Cleveland for three generations. Dr. Edward Fitch Cushing's grandfather, Dr. Erastus Cushing, son of Dr. David Cushing



of Pittsfield, Mass., settled in Cleveland in 1835 and soon won a leading position. He lived to a good old age and was succeeded in practice by his son, Dr. Henry Kirk Cushing, who in turn retired from active practice some eighteen years ago in favor of his son, Edward. It is rare indeed for a community to be served with such faithfulness and duration by three generations of medical men.

Dr. Cushing's mother, who was Miss Williams of Cleveland, was noted for her intellect and culture, charm and grace of manner and devotion to all that is brightest and best.

Dr. Cushing was born in Cleveland June 24, 1862. He secured the Ph. B. degree from Cornell in 1883 and the M. D. degree from Harvard in 1888. After serving full terms in both the Medical and Surgical Services of the Massachusetts General Hospital and in the Obstetrical Service of the Boston Lying-in Hospital he studied medicine two years in London and Vienna. With his characteristic devotion to duty he put aside his early ambition for a career in surgery and trained himself in general medicine, obstetrics and pædiatrics, that he might follow his father's footsteps and assist him in his practice. In 1891 he assumed the heavy burden and responsibilities of his father's practice. In a short time these were largely augmented by his own personal following.

Dr. Cushing married in June 1897 Miss Harvey, the daughter of Mr. and Mrs. E. H. Harvey of Cleveland. He is survived by his widow, his son, Edward Harvey Cushing, a sister, Miss Alice Cushing, and four brothers, Mr. William E. Cushing of the Cleveland bar, Mr. George Cushing of San Francisco, Prof. H. P. Cushing of Western Reserve University and Prof. Harvey Cushing of Johns Hopkins University.

Dr. Cushing was appointed Associate Professor of Pediatrics in Western Reserve University and Visiting Physician to the Children's Ward of the the Lakeside Hospital in 1894. In a few years he was made full Professor of Pediatrics in the University and Visiting Physician to the new Lakeside Hospital. An enthusiastic and inspiring teacher, he was admired and beloved by his students and house physicians. His influence over the young men under him was remarkably stimulating. His counsel was constantly sought and cheerfully given. He encouraged a number of young medical men of exceptional talent and training to settle in Cleveland.



Dr. Edward Fitch Cushing







Dr. Cushing rendered great and far reaching services to the Medical Department of Western Reserve University and to the Lakeside Hospital in a number of ways. The present intimate association between the Lakeside Hospital and the Medical School, which is so essential for the development of scientific medicine in Cleveland, the better fitting of medical men for service and for the best possible care of the sick poor, is due, more than to any other factor, to his conception and advocacy of the logical necessity of such a relation. He held that the influence of a well conducted hospital upon the care of the sick of the city extended far beyond its walls, through the part it plays in producing a more highly trained type of physician than is otherwise possible; that while only a few hundreds can enjoy the benefits of treatment within the hospital, thousands must profit from the care of better trained hospital graduates. Closely associated with this idea in Dr. Cushing's mind was the realization of the importance of filling the principal visiting posts in the hospital with university professors with continuous services and the establishment of a fifth hospital year in the medical course, with a special degree of M. A. in medicine for work of a high standard. Happily he lived to see the fulfilment of this end assured. Dr. Cushing rendered valuable service as a member of the Training School Committee of the Lakeside Hospital. He was a member of the Board of Trustees and the Executive Committee of the Babies' Dispensary and Hospital, President of the Cleveland Medical Journal Company, member of the Committee on Municipal Sanitation of the Cleveland Chamber of Commerce, and of the Cleveland Board of Health. He took an active interest in the Visiting Nurse Association and in the Rainbow Cottage.

To Dr. Cushing's initiative and influence the phenomenal success and rapid growth of the Babies' Dispensary and Hospital are largely due. This work was very close to his heart and he took the keenest pleasure in working out its development and in planning the Dispensary and Hospital Buildings. This work alone is a worthy monument to any man. Dr. Cushing undertook the presidency of the Cleveland Medical Journal Company when the Journal was heavily in debt and its future seemed hopeless. Thanks to his energy and liberality in a few months great local interest was aroused in the Journal; its editorials and book reviews became models of their kind and the original articles were increased in number and excellence. As soon as existing



contracts expired, advertisements not conforming with the principles laid down by the Council on Pharmacy and Chemistry of the American Medical Association were excluded. Thus in a short time the Cleveland Medical Journal has taken rank with the best monthly medical journals devoted to general medicine and surgery.

Dr. Cushing took the deepest interest and played an active part in the development of the Cleveland Medical Library. So extensive were his activities in various medical and kindred organizations, that it was not uncommon for him to attend three important meetings in a day.

Dr. Cushing gave liberally to charities and delighted in giving. He valued the command of means largely for the power it gave of helpfulness to others. He was a civic, educational and charitable force of unusual strength and was deeply interested in the sociological and medical development of his native city, of which he was proud.

In all the relations of family and friendship, Dr. Cushing was exemplary; he was an affectionate and venerating son, a devoted husband and a model father. He delighted in his home, where he loved to entertain his friends with a cordial and delightful hospitality. Dr. Cushing, though dignified and reserved, was cordial and genuine in manner. He had a broad sympathy and kindly feelings to all, especially to the sick. Dr. Cushing was highly gifted intellectually. His naturally strong mind was cultivated in many directions and he delighted in acquiring and in using knowledge. With quick perceptions and a remarkable intuition, a retentive memory and clear and accurate reasoning powers, his mind worked with ease and power. He possessed clear-cut opinions on many subjects and wrote and spoke with clearness and force. Without art, he impressed his opinions upon others. His was the judicial cast of mind and his arguments were presented without personal bias. He was a constant reader of both medical and general literature. Dr. Cushing delighted in nature and was never happier than when among trees, birds and flowers. Children made an especial appeal to him, and he had a peculiar tact and skill in winning and controlling them.

It is, however, as a great practical physician, the friend and counsellor of the family—a type rapidly passing and of which he was a notable example—that Edward F. Cushing reached the

height of his usefulness and will be most widely mourned. He had a natural aptitude for practical medicine, and when he entered the sick room, with his simple, direct, earnest manner, full of understanding and solicitous to serve, he won the confidence of all. With his great experience, wide reading and close and accurate powers of observation and examination, he was acquainted with the natural history of disease and skillful in diagnosis. He possessed, in addition to the power of classifying disease, that much rarer gift of making an accurate estimate of the condition of the individual with the disease. He recognized and managed his large practice with the precision of a well conducted hospital ward, with his staff of nurses and laboratory assistant. He availed himself of the latest discoveries in medicine, whether for diagnosis or treatment. No detail that insured the comfort and increased the chances of the patient was too small. A master of therapeutical resources, he used drugs comparatively little, and, understanding *vis medicatrix naturae*, he treated sick people and not diseases. Herein lay one of the secrets of his great success as a physician.

Dr. Cushing was an inspiration to all who came in contact with him. He was the truest and most generous of friends. Governed by the highest ideals of honor, his character was cast in heroic mold, he was pure in soul, patient and long suffering in the service of others and incapable of a mean or unworthy thought or action. Without fear and without reproach he was true to every trust.

A great spirit has passed.

W. T. H.

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### The Journal Guarantee Fund.

The action of this Journal, in excluding from its advertising pages such articles as were not approved by the Council on Pharmacy and Chemistry of the American Medical Association, greatly reduced its income and resulted in a deficit at the end of the year. To offset this the late Dr. E. F. Cushing, assisted by one or two others, contributed quite a large sum of money, and shortly before his death he outlined a plan whereby a guarantee fund should be secured to permit a wider scope for the Journal and to relieve the management of any financial embarrassment. Within the last few days such a fund has been started and the results have been most encouraging. Appeals to the friends of



Dr. Cushing and to others interested in the Journal have already resulted in contributions amounting to over \$1000. Dr. Cushing had great faith in the Journal as an influence for good and of great weight in promoting the interests of the profession. We owe much, not only to his deep interest and wise counsel but also to his generous financial aid. The continuation of the Journal along the high ethical lines that he insisted upon, becomes, now that he has gone, more than ever the duty of those who are left and the establishment of this guarantee fund will greatly aid in this endeavor.

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### Edward Fitch Cushing.

He came among us like a brilliant star  
Approaching earth, a marvelous light;  
A keen and ample mind well charged  
With knowledge in its might.

Then, too, the light was soft, and it was warm  
To those within its radiant rays;  
Great kindness, love, and simple heart,  
These were his means and ways.

And like the star, again, his sudden end  
Arrested in its azure flight;  
Ah, yes; but energy is never lost;  
It still moves on, its oscillations spread;  
His influence continues, memory holds  
The inspirations of his life ahead  
To help us go aright.

C. E. B.

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### A German Estimate of American Teaching of Pathology.

In the tremendous advance, commercial, intellectual and artistic, that Germany has made since the unification, medicine has had its proper share. The long list of eminent workers who have followed Virchow is evidence that, of the medical subjects, pathology has not lagged behind. Germany, with its prominent professors of pathology and its wealth of pathological material, is still the Mecca for the pilgrim pathologist. It is

proper that we should admire the achievements of German pathology. But let us not, in our contemplation of the almost ideal, lose sight of what has been accomplished in America.

The high opinion which we have of German pathology comes largely through those numerous graduates of American medical schools who have worked with the masters abroad. It has remained for a German to compare the teaching of pathology in the two countries and to estimate the relative merits of the instruction which the medical student receives before the attainment of his degree. H. Chiari, Professor of Pathology at Strassburg, who delivered the Herter lectures at the Johns Hopkins University in October, 1910, has recently (*Muenchner medizinische Wochenschrift*, LVIII, 1911, No. 5, Jan. 31, 260-262) expressed his opinion of the teaching of pathology in America. His estimate is so high as to be most flattering to our self-esteem. The German, who is apt to undervalue not only medical teaching in this country but also the preliminary training which the student receives, will assuredly derive a new and a broader outlook from Chiari's summary of just what training the student receives in grammar school, in high school and in college. We trust that the schedule of the four-year medical course, which Chiari gives in his paper, will also tend toward a better understanding of the advantages of which the American medical student may avail himself.

In his discussion of the teaching of pathology Chiari limits himself to the first-class schools in this country. His regret that there exist schools which are not first-class cannot be any greater than that of enlightened Americans, and his desire for the rapid disappearance of such schools cannot be any more hearty than our own. As regards the amount of time devoted to the teaching of pathology, he compares the 129 didactic hours and the 329 laboratory hours of an American school with the 160 didactic and the 220 laboratory hours of the German curriculum. He praises also the intimate relation which exists between the lectures and the laboratory work and mentions favorably the practical character of our examinations. In the two very important elements of time and method American teaching would seem to be at least the equal of the German. Special factors which, in the opinion of Chiari, are aiding in the development of pathology in this country are the endow-



ment of institutes, not necessarily connected with universities, devoted to pathology and allied subjects and the excellent library facilities which most medical centers possess.

Our chief disadvantages are paucity of pathological material, poor salaries and the overburdening of the professors of pathology with routine work. The training of the German citizen is such that he looks upon an autopsy as as much a matter of duty to his country as his term of military service. We acknowledge the advantage of Germany in the matter of material and American workers in pathology do not need a Chiari to point out the smallness of their salaries. The third objection, the excessive routine work laid upon professors of pathology, is being met in the better schools in precisely the manner suggested by Chiari, namely, by relieving those who teach pathology of the teaching of bacteriology and hygiene. While the two latter subjects have not yet attained the dignity accorded them in the German hygienic institute they are being given a more autonomous position. Harvard has a Professor of Pathology, a Professor of Bacteriology and a Professor of Hygiene. At Johns Hopkins and at Western Reserve, perhaps also at other schools, hygiene has been united with bacteriology—the teaching of these subjects is in the hands of one group of instructors, pathology is taught by another group.

American medical educators generally must be gratified with the very high estimate which so renowned a pathologist as Chiari places upon the teaching of pathology in this country. There is cause for additional local gratification in that the detailed schedules of the four-year medical course and of the course in pathology, which Chiari has given as praiseworthy models, are those of Western Reserve University. O. T. S.

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### **The Clinical Congress of the Surgeons of North America.**

The organization of one more association of medical men is nothing new or uncommon for it is a matter of almost everyday occurrence. Yet it may have a far reaching significance, as was the inception of the A. M. A. or of the Association of American Medical Colleges, or it may be quite unique in its plan as was the Association of American Teachers of the Diseases of Children. The initial meeting of the Clinical Congress of the Surgeons of North America which took place in Chicago during

two weeks of last November is, it seems to us, deserving of far more attention than the brief paragraph or two that some of the journals gave it. Many of them seem not to have grasped the importance and significance of the movement. Some did it justice, one of the most comprehensive and adequate reports we have seen being that published as a leading article in the *American Journal of Clinical Medicine*, coming from the versatile pen of a master surgeon, Dr. Emory Lanphear of St. Louis. When the mere announcement of two weeks of clinics brings together more than 1200 surgeons from all parts of the United States and Canada, and these men are treated by the surgeons of one city to a brilliant series of operations and demonstrations covering nearly every field of advanced modern surgery, holding the attention and winning the plaudits of the visitors, there is shown a state of affairs that is worthy of study. An event just like it has never to our knowledge occurred before and it is probable that such an event could not have taken place in any other country than this.

The idea of the meeting originated with Dr. Franklin H. Martin, and in the furtherance of the plan he was ably seconded by his associates on the *Journal of Surgery, Gynecology and Obstetrics*, an instance of editorial foresight and journalistic enterprise that should at least have caused all journalists to dip their pens and make notes. Notwithstanding its many medical schools (and, let us whisper it,—factions), the profession of Chicago got together and worked harmoniously and energetically in a manner that might with advantage be emulated by the profession in some other large cities—eke smaller cities—not to mention towns.

The gathering was not made up of undergraduates (these politely gave place to the visitors), nor of raw recruits from rural districts, but contained, as has truly been said, "hundreds of the best surgeons in America" eager to learn more of their science and art; and the scientific spirit that prevailed at the clinics and demonstrations must have been felt as an inspiration by all who were there.

It is true that a spirit quite apart from the scientific is apt to be demonstrated in connection with such occasions, as evidenced by the love of public notoriety obtained through the newspaper accounts of the meetings and the men who took part in the exercises. Even when, through a lax state of ethical tone or be-



cause of the influential position of those who profit by it, this practice is tolerated for the time being, it always lowers the mental and moral stature of those who use it, and whatever they gain from the public by such means they lose in the permanent estimation of the profession. An objection that we have heard raised against clinical meetings such as that at Chicago is that they are not best for the interests of the patients operated upon—that patients are rendered nervous, infection is liable to be brought into a crowded operating room, etc. The same objection can be made to the clinical teaching of surgery in every medical school; and we all know that the conditions can be and must be regulated so that the patients' welfare is in no way prejudiced by the presence of spectators. No surgeon who is himself disturbed in his work by the presence of visitors should attempt to demonstrate operations.

The amount of clinical material available and made use of was something remarkable. It is not our intention to even enumerate here the variety of operations performed or cases demonstrated. Their profusion was indicated by the somewhat sarcastic remark of a prominent Chicago internist who declared that "there were more linear miles of meat cut in those two weeks than had even been done in an equal length of time, outside of a packing house."

But the carnival of cutting gave great satisfaction to the surgeons who attended it and this was made evident at a meeting on the last day when a permanent organization was effected. The following officers were elected for 1911. President, A. J. Ochsner, Chicago; Vice-President, John B. Clarke, Philadelphia; Secretary, Franklin A. Martin, Chicago; Treasurer, L. B. Kanavel, Chicago; Manager, A. D. Ballou.

There is to be a yearly meeting held probably in November, but the exact time, and the place have not yet been decided upon. Philadelphia was considered as a meeting place. Delegates to future meetings of the Congress will be elected as follows: one from each Congressional District, two at large from each State, two from each Province in Canada, two from Mexico and each Central American Republic, and two from each colony of the U. S., viz., Porto Rico, The Philippine Islands and Hawaii.

We venture to predict that at the next meeting standing room will be at a premium, and that all the live medical journals will have representatives on the ground taking notes. S. W. K.

## **The Prevalence of Mental Diseases Among Employees of Transportation Companies.**

At the 1907 meeting of the American Neurological Association a committee consisting of Philip Combs Knapp, Chas. L. Dana, Hugh T. Patrick and Frank B. Fry, was appointed to inquire into the occurrence of mental disease among persons employed by transportation companies.

After studying the statistics of various selected hospitals throughout the country they submitted a report in 1910 with their conclusions which, in abstract, is as follows:

"A considerable number of cases of general paresis and other forms of mental disease are to be found among railway employees.

"I Out of 5832 commitments 60 were railway employees (over one percent).

"II Out of 1905 male paretics seen in city clinics, 40 were railway employees (nearly four percent).

"III Out of 2803 paretics at present in hospitals for the insane, 102 were railway employees (nearly five percent).

"IV The examining physician for two railway companies has noted in four years, among the employees of these companies, 26 cases of mental disease, 15 of which were cases of paresis.

"This committee was unable to discover any fatal accidents due to the mental incompetence of such employees, but they learned of several accidents, unattended with loss of life, due to this cause, and several cases in which accidents have been narrowly averted. It is obvious therefore that it is a source of danger to the community to keep persons suffering from paresis and other mental disease in responsible positions in the railway or marine service. Such danger can be averted, or at least diminished by the examination, at repeated and regular intervals, of all employees holding responsible positions."

The writer having studied this report communicated with the superintendents of the State Hospitals and leading private institutions of Ohio in regard to the prevalence of paresis among male patients who had been at the time of their commitment in the employ of transportation companies. The statistics are as follows:



	Number of male paretics at present in institutions	Number employed by transporta- tion companies
Athens State Hospital .....	444	1
Cleveland State Hospital .....	70	6
Columbus State Hospital .....	57	4
Dayton State Hospital .....	18	2
Longview State Hospital, Cincinnati ...	21	0
Massillon State Hospital .....	17	0
Toledo State Hospital .....	31	4
College Hill Sanitarium, Cincinnati .....	4	0
Fair Oaks Villa, Cuyahoga Falls .....	1	0
Total .....	263	17

These statistics cannot, of course, be considered complete, as many cases of paresis are cared for in their homes and many of them never get into our public or private institutions but the figures available are significant in that they show that 6.46% of the total number of male paretics now under treatment in Ohio institutions had been at the time of their commitment employed in transportation business.

The fact that this incurable mental malady develops insidiously and frequently attacks men in the full vigor of their activity and that its earliest manifestations are expressed in impairment of memory, failure of judgment and indecision makes it obvious that this alone is a source of great danger from which the traveling public should be protected, and it does seem that a careful and repeated examination of the mental status of transportation employees is as important as the careful investigation of their eyes.

H. H. D.

### The Edward Fitch Cushing Memorial Meeting.

On the evening of Monday, April 17, a memorial meeting to the late Dr. Edward Fitch Cushing was held at the Cleveland Medical Library.

The Chairman, Dr. G. W. Crile, in calling the meeting to order spoke as follows:

"I know that I voice the sentiments of this audience in the statement that in the death of Dr. Edward Fitch Cushing this community has lost its most useful citizen. Many of the leading institutions for the promotion of benevolence, of education and of the public welfare have so keenly felt this loss that the Cleveland Medical Journal Company arranged for this meeting for the purpose of giving a fitting opportunity for the summing up of the great work of a great man, for drawing anew the inspiration from the lesson of his life, and for consecrating ourselves to the arduous task of carrying on the work he has left unfinished.

"The principal institutions to which he devoted his rare and brilliant talents were: The Visiting Nurse Association; The Milk Commission; the Rainbow Cottage; the Academy of Medicine; the Medical Library; the Cleveland Medical Journal; the Babies' Dispensary and Hospital; the Lakeside Hospital and the Western Reserve Medical School."

The Cleveland Medical Journal was represented by Dr. W. H. Weir who said:

"Two years ago at the Annual Meeting of the Cleveland Medical Journal Company, Dr. Cushing accepted the office of President. At that time many difficult problems of policy and management confronted the Journal. From the moment that Dr. Cushing assumed the duties of his office one problem after another began to disappear. A new system was established in the business management; the type and appearance of the Journal was improved; the advertisements were limited to those approved by the Council on Pharmacy and Chemistry of the American Medical Association; a better class of articles was published and the best talent of the city was inspired to contribute editorials.

"As a result the circulation of the Journal increased; it has been extensively quoted at home and abroad; in Italy,



France, Germany, England, South America, and Canada it has been welcomed as an exchange, and the books sent to the Journal for review have greatly increased in number, thereby enriching the Cleveland Medical Library. The high standard of the Journal has called forth editorial notice from the leading American journals, in fact at this moment the Cleveland Medical Journal stands as a worthy representative of the highest standard of medical journalism.

"After making due acknowledgement of the splendid work of Dr. Cushing's predecessors and the assistance of his co-workers, it is but justice to say that the Cleveland Medical Journal of today is the creation of Dr. Cushing. This was accomplished in the same masterful way in which he accomplished other things; he gave his time, his thoughts, his personal influence and his money without stint.

"Although no one man can fill his place a due appreciation of such service can only be shown by an increased interest and work by all, that the standard set by him may be maintained for the good of medicine and in honor of his name."

The Graduate Nurses' Association was represented by Miss L. Darling, who read the following resolutions:

"*Whereas*, in the death of Dr. Edward Fitch Cushing the nursing profession has lost one of its most able, most sympathetic counsellors.

"*Therefore be it resolved*, that the Graduate Nurses' Association of Cleveland take this opportunity to express their deep appreciation of his wonderful inspiring influence and personal assistance in solving their many problems. His high ideals, his thoughtfulness for others and his great interest in humanity must always remain a beautiful memory.

"*Resolved*, that we extend our deepest sympathy to Mrs. Cushing and to his family.

"*Resolved*, that a copy of these resolutions be placed on the minutes of the Graduate Nurses' Association and be sent to Mrs. Cushing."

The Milk Commission of Cleveland was represented by Dr. J. J. Thomas, who spoke as follows:

"At a meeting of the Academy of Medicine late in the year 1904, during Dr. Crile's term as President, it was sug-

gested by one of its members that the medical fraternity ought to actively concern itself with the character of the milk supplied to infants and young children, following the lead of the profession in the East, and to no longer place implicit faith in producers largely, if not entirely, influenced by their commercial interests.

"After close study, extending over several years, of the subject of a clean milk supply, it seemed that a golden opportunity presented itself to the Academy at that time to stand sponsor for a movement which would not only ensure a supply of milk of guaranteed purity to infants, children and invalids, but also reflect lasting credit upon the Academy and the profession at large.

"The suggestion was acted upon at once and a Committee of two was appointed to formulate a plan.

"Guided by the experience of the medical profession in other cities, the Committee recommended that a Commission be appointed, to be known as the Milk Commission of the City of Cleveland, to consist of four members from the Academy of Medicine, two from the Homeopathic Medical Society and one from the Chamber of Commerce, the function of this Commission to consist in placing Certified Milk upon the market, the milk to be furnished by producers whose dairies were to be under the absolute control of the Commission and the product to be guaranteed by the certificates issued by the Commission.

"One of the four members of the Commission selected to represent the Academy of Medicine was Dr. E. F. Cushing, and his untimely and lamented death marks the first break in the original personnel of seven members.

"His selection was an especially happy one, not alone on account of his interest in children and his acknowledged ability as a pediatricist, but by reason of his wise counsel and his power to override all obstacles, for it proved to be a herculean task that the Commission had been directed to accomplish, simple though it appeared at first.

"A contingency not foreseen or provided for by the council was anticipated by Dr. Cushing even before the first meeting of the Commission, viz. securing funds for meeting the considerable expenses incurred in carrying out the preliminary details.



"Dr. Cushing was largely instrumental in procuring a fund of \$900.00 from three generous donors, with the promise of as much more as might be found necessary to finance the project.

"In the light of subsequent events, there is no doubt that, without this fund, the activities of the Commission would have been very much restricted, if not, indeed, doomed to utter failure.

"The work of every milk commission, preparatory to placing Certified Milk upon the market, evolves numerous problems which are purely local, and must be solved without reference to the experience of commissions in other cities. After the selection of the expert bacteriologist, chemist and veterinarian, the chief problems have to do with the selection of producers and the numerous regulations by which the production at the dairy and the delivery of the milk is to be controlled.

"Invitations were sent to more than 100 producers supplying milk to the city, to meet with the Commission, in the hope that we could select a number who might meet the requirements with reasonable alterations in their plants.

"Only three replied. One was hopeless, his dairy on investigation proving quite unsuitable, even if extensive alterations were made. Another, and the one upon which the Commission had pinned its faith, as it had been supplying special milk for infants for several years refused to make the considerable alterations required on account of the expenses involved and subsequently became a rival. The third, Mr. Canfield, agreed to meet all specifications and did so to the entire satisfaction of the Commission, thus saving our frail bark from total destruction.

"To the solution of these problems Dr. Cushing devoted himself heart and soul, and often, in the darkest hours, inspired the rest of the Commission to renewed faith by his vigor and optimism.

"I venture to say that few, if any, of the numerous projects with which he was concerned during his useful and busy life, commanded greater interest and enthusiasm than the work of the Milk Commission, in whose ultimate success he was so large a factor.

"During the six months from Dec. 2, 1904, when the Commission was organized, to the following June, numerous meetings were held, often every week, sometimes twice a week, never less than two and often three hours being spent in the

discussion of the various phases of the work as it progressed. From these meetings Dr. Cushing was rarely absent, although his attendance must certainly have been at great sacrifice to his numerous other duties. But, having once entered upon the work, he was determined that it should succeed, and I feel confident that the full measure of success attained was a source of great pleasure to him, as the goal, after all, was not merely the material paraphernalia representing the Commission's work, but the saving of human lives in the most helpless stage of existence, infancy.

"He may, also, have felt a pardonable pride in the material success, as our Commission stands tenth in order of time of organization in an international body comprising nearly 80 units, commissions having been formed not only in this country, but also in Canada, England and Austria. It has been publicly stated by a recognized authority in milk production that the dairy controlled by the Cleveland Commission is the most scientifically conducted in the United States. Our lamented colleague lived to see the proof of this assertion in the gold medal won by the product of this dairy at the national milk contest held two years ago in Milwaukee.

"I am sure that I speak for the members of the Commission in expressing the hope that the results achieved will prove a lasting memorial to the memory of one whose friendship was ever a privilege and a joy, and of whom, departed, it may truthfully be said, "He made the world better for having lived in it."

"As a slight token of respect for the memory of our fellow member, the Milk Commission has adopted the following resolutions:

*"Whereas* the late Dr. Edward Fitch Cushing one of the original members of the Milk Commission, active in perfecting its organization and development and always one of its most valued advisers has been taken away by death.

*"Be it resolved* that the Milk Commission express to his family and to the profession at large their deep appreciation of his most efficient and faithful services and their sense of profound sorrow at the loss of a friend and colleague and that a copy of these resolutions be sent to his family as well as inscribed on the records of the Commission."



The Board of Trustees of Rainbow Cottage was represented by Miss Clara P. Sherwin, who said:

"Though Dr. Cushing had no official connection with Rainbow Cottage, its Board of Trustees feel as deeply, as can that of any other organization, the greatness of their obligations and of their loss. Possibly, because we had not the rights which a more recognized relation implies, we appreciate the more keenly the broadness of his interest, the wonderful generosity of his nature, his willingness to cooperate with every effort for the betterment of the sick and suffering and his unselfish giving of himself to all such service.

"We wonder today, as we have wondered for so long, how, with the many responsibilities laid upon him, he could give so much thought, so much time to our problems.

"Rainbow Cottage, as its name might suggest, was, twenty years ago, the outcome of an earnest desire on the part of a circle of young girls to give some of Cleveland's children sunshine, good food and a better chance for useful lives.

"With the growth of all charitable activities and the organization of other institutions we found ourselves four years ago, confronting the problem of duplicating the work, which others could do as well or better.

"At that crisis, for such it really was, we turned to two men, prominent in Lakeside Hospital, for counsel. Through their ready cooperation, their generous gift of interest and aid, a working affiliation was formed with Lakeside Hospital, which has given us a definite work to do and greatly widened our field of usefulness.

"One of these men was Dr. Cushing and it is our gratitude to him we are now striving to express.

"There were many difficulties in the way of transforming a summer home for convalescent children into an all-year institution, on a hospital basis, where serious heart cases could be cured and helpless cripples take their first steps, but Dr. Cushing's ambition, his faith in us were bigger than we dared to have for ourselves, and we found in him a constant adviser always ready to suggest and encourage.

"We have spoken of this work not because it is *ours* but *his*, in that he so helped to plan and execute.

"As the days pass we are learning more and more of all he gave us in unexpected and hitherto unknown ways. Definite

help is coming to us because he spoke to others of our needs.

"While Rainbow Cottage today feels the difficulties, the almost hopelessness of going on without Dr. Cushing's great strength and wisdom, it also feels, as must so many other organizations, the necessity laid upon it to do better work on broader lines, because he believed in its future, expected good work from it.

"To help is no small thing, but to inspire others to their best endeavor, is not that a greater. and to whom was ever given more of that power than to Dr. Edward Cushing?"

The following memorial resolution adopted by the Board of Trustees of Rainbow Cottage was then presented:

*"Whereas*, death has lately taken from among us Edward Fitch Cushing, who since the founding of Rainbow Cottage, has been its chief medical adviser, and has aided incalculably the work of this organization, and

*"Whereas*, Rainbow Cottage has suffered irreparable loss, since it seems impossible to find in another the humaneness, tenderness, steadfastness and courage, which, combined with scientific training and natural aptitude, so distinguished Dr. Cushing.

*"Therefore be it resolved*, that the Trustees of Rainbow Cottage hereby express to the world the depth and sincerity of their regret for the untimely removal from life and beneficent activity of this rare man, which leaves them saddened and the world poorer, and

*"Resolved*, that they extend to Dr. Cushing's family their deep sympathy and the assurance that the wisdom and ability which he exercised in aid of this Board by counsel and by service will be held in grateful remembrance, and

*"Further resolved*, that the Secretary be instructed to forward to Mrs. Cushing a copy of these resolutions."

The Visiting Nurse Association was represented by Miss Belle Sherwin, who read the following resolutions:

"The Visiting Nurse Association of Cleveland, assembled at the first meeting of its trustees after the death of Dr. E. F. Cushing, desires to express and to inscribe upon its records the following:

"From the time of the organization of the Visiting Nurse Association until Dr. Cushing's death, he constantly showed himself a warm friend, a wise counselor and a generous supporter,



materially and morally, of the work which the Association seeks to do among the poor of the city.

"Members of the Board of Trustees and of the staff of nurses have always found him quick to consider their perplexities as from time to time they have arisen and to give freely both time and attention to helping solve such difficulties as have been referred to him. The Association has much to thank him for in the way of wise and clear-sighted advice, and it mourns in him one of its most earnest and most able counselors."

Miss Sherwin then said:

"These general resolutions cloak memories of active helpfulness which ought also to be expressed, if they can be. A lively sense of benefits received urges it, and the 'purposes of wisdom' ask it. For the life we can so ill spare taught us daily, and a realization of it from as many angles as possible will help to continue its characteristic influence among us.

"When plans for visiting nursing in Cleveland were taking shape among a group of Dr. Cushing's friends ten years ago, his advice largely determined the form those plans took, especially at those points in which the resulting Association differed from others previously organized elsewhere. For example, no medical man has ever been a member of the Board of Trustees or an Advisory Committee, because Dr. Cushing argued then that nurses whose services were to be given to the patients of all possible physicians ought not to have a particular connection with any physician. He was therefore excluded by his own act from any official connection with the Visiting Nurse Association. But in the same breath he offered to come to its aid whenever he could personally be of use and he did so abundantly.

"Experience and imagination both enabled him to realize swiftly certain definite and important results upon the entrance of nursing to a new field, while many of us foresaw only vaguely the relief of suffering and the promotion of general well-being. Sensitive to the comfort that skilled nursing would bring to squalid homes, his thought ran forward at once to the teaching which would accompany it, to the vision of a new agency, capable of being multiplied indefinitely in the service of preventive medicine. Several appointments of visiting nurses to positions which now seem part of the established order of things

are the result of this early conviction of his, as one or two others are the result of his later perception, that a visiting nurse supplied a long-missed link between the physician in the clinic and the outpatient, bewildered, in a strange city environment.

"Upon more occasions than any minutes show, Dr. Cushing gave the Visiting Nurse Association the benefit of what Dr. Stewart has so happily called his practical sagacity. The point upon which his advice was asked was sometimes one of those details more perplexing than a large policy, and the counsel given was always so right that it afterward seemed obvious. Instances are too intimate to be quoted and are perhaps as unnecessary to those who knew Dr. Cushing at all as to speak of the quality of inspiration in his manner of giving counsel. That undoubtedly had the rare effect of helping one to come to his own aid in the future.

"His appreciation had singular value because they followed a penetrating analysis of the matter in hand and usually laid emphasis on features capable of further development. His approval was stimulating, constructive criticism. When he gave it, he not only endorsed with authority what he praised, he suggested the unperceived possibilities in the familiar thing. No single individual, not a member of its publication committee, has supported the Visiting Nurse Quarterly as Dr. Cushing did by repeating his faith in its ultimate value. No working trustee fully recognized the unique importance of a staff of visiting nurses which should embrace all the various sorts of social nursing done in the city until Dr. Cushing insisted it was fundamental to the best work of each and all.

"Such support was, in reality, leadership. We have lost it. We have lost his practical counsel and his personal influence with many whom we may not know how to reach. We must miss the energy of his mind at work upon our particular problems. But we have had 'the chance of the prize of learning' as from a great teacher, some of the finest uses of life—in days incessantly busy, to welcome with enthusiasm a new cause of wide helpfulness, to give hours generously to its service while spending minutes without waste, to give one's self unsparingly."

The Cleveland Medical Library was represented by Dr. H. G. Sherman, who referred to the deep interest that Dr.



Cushing had always shown in the Library and to his generous aid at all times in increasing its efficiency.

The Academy of Medicine of Cleveland was represented by Dr. John Phillips, who spoke as follows:

"It was my privilege during the past seven and a half years—an unusual privilege indeed, for any young physician—to be intimately associated with Dr. Cushing. During that time I learned to know him well; to know him was to love him for his rare character, and to admire him for his wonderful ability as a teacher and internist. With his death the younger physicians in Cleveland lost their ideal. He was always interested in their welfare, always had a word of encouragement and of appreciation for their work.

"He never lacked enthusiasm; this, together with his wonderful knowledge of his profession, made him an inspiration to all the men who served under him. I think we all wondered how in the busy life that he led, he could keep up so well with his reading, for nothing new in medical literature escaped his eye. I called to see him the last day he was in his office, about a very rare and unusual case that was troubling me, and without a moment's hesitation, he picked up a book from the shelf and turned to an identical case that he had read of in a journal five years previously.

"He knew what each man was doing and repeatedly said to me, 'If I can be of service to any of the younger graduates in planning for their future or in any other way, I wish you would let me know.' To be so thoughtful of others in the midst of such a busy life shows what a great man he was.

"It was his work as a practising physician, that endeared him to his families. To see him at the bedside of a sick child was to see him at his best. He always seemed to know at once the nature of the illness and was so resourceful that he always knew what to do to relieve the little sufferer. The children all loved him and he loved them almost as much as if they were of his own family. He educated each mother to care for her own child, and in that way his influence was felt not only in the families he attended but in many other families in Cleveland. I feel safe in saying, and I am sure my opinion will be upheld by all who knew him, that he was the greatest general practitioner of the present time.

"Though often unable from pressure of work to attend the meetings of the Academy of Medicine, he took a deep interest in its work. While Secretary of the Clinical and Pathological Section, I received from him many helpful suggestions for arranging the programs for our meetings. He stood for all that was highest and best in the medical profession.

"It was his great wish that the Cleveland Medical Journal, the official organ of the Academy of Medicine, should be one of the best journals in the country. One can scarcely mention any great work organized by the physicians of Cleveland for the prevention of disease and for the welfare of the health of the community but he was the prime mover and the dominant spirit in it. Every organization that he was interested in accomplished its work largely because he could inspire others with his own faith and this he did because he led them to believe in themselves.

"Dr Cushing is gone—but has left with us, the remembrance of a blameless life—a life of wonderful activity spent in doing good and this I am sure will always be an inspiration to every member of the medical profession of this city."

The following resolution passed by the Academy was then read:

"In consideration of the splendid services which the late Dr. Edward F. Cushing rendered so ably, so willingly and so wisely to the medical profession of Cleveland in all its branches, as leader, teacher and practitioner, and to the public-at-large through his efforts to assist in all movements, which had as their aim the conservation of health, this Academy of Medicine of Cleveland,

*"Resolved*, that it has lost a keen adviser, a tireless worker, and a loyal and consistent supporter and, that this irreparable loss is greatly to be deplored."

The Board of Trustees of Lakeside Hospital was represented by Dr. J. A. Ranney, Superintendent of the Hospital, who read the following:

"In the death of Dr. Edward F. Cushing the Trustees of Lakeside Hospital feel that their institution has met with the greatest loss it has ever been called upon to meet.

"Words seem weak and powerless to express their deep



personal sorrow at his death and their appreciation of the invaluable character of his services to the hospital.

"Almost ever since he first began to practise medicine in Cleveland he has been a member of the Visiting Staff of Lakeside, and brought to the fulfillment of the duties of that position not only medical talent of the highest order, but a zeal and devotion and sympathy rare and unusual. He was deeply interested in everything that counted for the best interests of the hospital and its inmates, and the Trustees learned to depend greatly upon his wise counsel, his great resourcefulness, and his untiring activities to assist them in solving all their problems of administration.

"When the new hospital buildings were planning, his experience and practical suggestions were most helpful, and no one was quite so wise and influential as he in bringing about the reorganization of the hospital administration needed for its enlarged work in its new home, and in cementing the close working alliance with the Western Reserve Medical College that has been so beneficial to both institutions."

The Babies' Dispensary and Hospital was represented by Mr. Arthur Baldwin who said:

"Dr. Cushing was a great lover of children and was singularly beloved by them in return. Many a time when he had no time to give to conversation with grown-ups, he would find it possible to spare five or ten minutes for play with the children, and you may be sure they always gave him the heartiest of welcomes. Sick or well, the children always looked forward to seeing their good friend. It seems to me, speaking as a layman, that a large part of his wonderful success as a practitioner with children was due to the fact that he always had their trust and confidence. What he told them to do, they would do quietly and bravely. The administration of ether, the application of the lance—whatever it might be—seemed to be robbed of a large part of its horrors when Dr. Cushing was there. The time which might have been given over to childish terrors, crying and screaming, he knew how to fill with games with the pencil or scissors, or some such thing, little games that only he could play. When it was all over, the child would forget the knife and the ether and remember the play, or the fact that Dr. Cushing praised him for being a fine, brave young man.

"So children—rich or poor—were one of his special fields, and the Babies' Dispensary, organized to fight the unnecessary and excessive infant mortality now existing, to give the babies health and a fair start in life, was an institution in which he was intensely interested.

"The conception of the plan in the first instance was, I believe, his; its beginning and its growth hardly could have been brought about without the sympathy and interest which he gave so freely. He had both the mind to conceive and the courage to carry out the conception.

"As a practical man he would see the obstacles in the path but he had the imagination to look ahead and foresee the means that should be taken to surmount these obstacles. Always he was sustained by a clear vision of the ultimate goal to be attained. The seer of visions is usually blind to the practical difficulties. The man who sees the practical difficulties usually misses the vision, and even if he sees it the sense of the difficulties oppresses him and he can not see the way out. Dr. Cushing had this rare and invaluable combination; that he could see the vision and the difficulties at once, and the way that should be taken to pass beyond the difficulties to the desired goal. In this combination of practical man and prophet lay, I think, the secret of his extraordinary helpfulness to the Babies' Dispensary, as well as other institutions in which he was interested. Such was the confidence of his coworkers in his judgment and the inspiration which they derived from his enthusiasm that they followed readily where he might lead. In the case of the Babies' Dispensary he lived to see half of his plan accomplished. That which remains to be accomplished, the establishment of a hospital for babies, in the interest both of philanthropy and science, is, I hope, to be realized in the near future. It was his dream, and, though we shall no longer have him to help and guide in the progress of the work, yet the good that he did will live after him and the institution will be in a large measure his, even though built after his death."

The following resolutions, passed by the Board of Trustees of the Babies' Dispensary and Hospital was then read by Mr. Baldwin:

"Whereas, in the death of Dr. Edward Fitch Cushing the City of Cleveland has suffered an irreparable loss and



*"Whereas, among the many charitable and benevolent institutions and plans for the relief of humanity in the City of Cleveland which owe their existence to his broad sympathies and intelligent direction, The Babies' Dispensary and Hospital has occupied a position very close to his mind and heart,*

*"Therefore be it resolved, that the Board of Trustees of The Babies' Dispensary and Hospital at this, the first meeting called after the death of Dr. Cushing, take this opportunity to express in so far as they may be able, the debt which this institution owes to him. Its inception was due to his clear foresight and wisdom in suggesting this method for relieving many of the ills to which the poor and suffering are subject. Through the early days of organization and the many difficulties of starting and continuing a new charitable organization of such wide scope, his clear vision and earnest interest enabled the institution to keep the goal which he had foreseen in sight, and to make such progress towards it as only his wisdom and zeal could have accomplished. It has been due to the confidence which the public has had in his ability and foresight, and to his guidance that the sums necessary towards the completion of his purpose have been in so great measure obtained. To those who are working in private institutions and with the Board of Health and City activities for the betterment of everything pertaining to the care of our people, could have come no greater loss than this. To The Babies' Dispensary and Hospital the loss cannot be measured. It but remains for those working for The Babies' Dispensary and Hospital to consecrate themselves to the fulfillment of the work which he has started.*

*"Resolved, that the Board of Trustees on behalf of The Babies' Dispensary and Hospital express to Mrs. Cushing and to his family their deep sense of sorrow and their sympathy with her in her bereavement.*

*"Resolved further, that this resolution be engrossed and placed in the records of this Society and a copy spread upon the minutes of this meeting."*

The Medical Staff of Lakeside Hospital was represented by Dr. J. H. Lowman who read the following resolution passed by the Staff:

*"The Medical Staff of Lakeside Hospital desires to give expression to its sense of loss in the death of Dr. E. F. Cushing.*

"It is the first time in many years that its ranks have been broken, and the first time in its history that it has lost one of its younger members. No one more than he saw clearly the great beneficence of a hospital as a scientific as well as a philanthropic institution, and no one was more willing than he to sacrifice his personal interests in order that this great organization might attain the ideals towards which we all believe it should aspire.

"Whether in the wards as a physician to the sick, or in the meetings of the staff of which he was the secretary for many years, or in the committee of the school for nurses where he served from the beginning he was constantly faithful to principle and to detail. He was foremost in devising plans that would develop the hospital as a place to heal the sick as well as a place where the principles of healing could be established.

"No institution can spare a man who saw so clearly its higher planes of services and strove so eagerly to place it there, without suffering a grievous and irreparable loss.

"We desire that these lines be spread upon our minutes and that a copy of them be sent to the family of Dr. Cushing.

Dr. Lowman then made the following remarks:

"Were I to sum up in a word the career and promise of Dr. Cushing I would say, as is said of Renan, that he was a man in evolution. That is, that his development was gradual and progressive and that each successive stage was stronger than the one before.

"It happens to many to follow a career successfully along certain well defined lines, but to few only to change effectively their aim, and increase their strength and effectiveness with the change. One must have a clear vision, lofty aims, and fundamental sympathies to compensate for the loss of momentum which a single idea long pursued always gives. Such an one has intelligence, he becomes often an organizer for he quickly eliminates the non-essential and comprehends the spheres of harmonious cooperation. He is not content with the contemplation of scientific problems alone because he sees the close alliance of other questions which as irresistibly impell him. For him it would be service and science and his sympathies would accentuate the service.

"Dr. Cushing began his work here as a physician in private practice for which he was peculiarly fitted by training and in-



heritance and this life he followed unremittingly. He was a frequent visitor to the old Lakeside Hospital and affiliated himself with the new one, as physician to the children, shortly after it was opened. Soon he became a regular visiting physician and divided the duties of the medical side of the hospital with his colleagues. To this service he brought the same keenness of insight and practical direction of the sick room that he had shown elsewhere. The house staff were always eager to accompany him on his rounds, and to these men was always added, during the summer, a group of students. To them he was a teacher. He was not however given to dialectics or to vain speculations; argument and discussion at the bedside were in fact distasteful to him. More than most of his colleagues he dwelt on the therapeutical side of the patient's condition and constantly introduced into the care measures that might add to the comfort and well being of a sick one. He followed closely the daily variations in the patient's condition and was often more interested in the old patients than in the new ones, but it was the children that particularly called for his sympathy.

"On one occasion when leaving, with the young men around him, the bedside of a very young child, who was about to breathe its last, he saw the nurse following, as was the rule, his group down the ward; he turned to her and said in his accustomed manner, 'go and sit by that baby it is going to die.' That touch added a note of solemnity to the remainder of the visit which the young men did not soon forget.

"He gave generously of his substance as well as of his time and installed a room off one of his wards as a clinical laboratory, whereby the scientific work could be done more rapidly and thoroughly. Early in his association with the staff he became its secretary and as such made many valuable suggestions; one of the most important of which led to frequent meetings of the trustees and the staff where matters of mutual interest were discussed. As representative member from the staff on the directing committee of the school for nurses he was in constant touch with the nursing department of the hospital and was instrumental in introducing many reforms there.

"He was particularly earnest in maintaining a high standard among the house staff and supported the idea of opening the positions of house medical officers to schools outside of Cleve-

land in order that competition might be greater and the positions held in higher honor. It is well known what this policy has accomplished for the hospital and for the profession in general. While the hospital had not a better friend or adviser, his wisdom revealed to him that a teaching hospital must be the great institution. He thought much of the possibility of bringing to the wards the research of the laboratories. It seemed to him that representatives from the laboratories should have a place on the staff that would enable them to bring to the physician the results of their scientific investigation. He often suggested practical measures whereby this ideal cooperation could be effected. One must stand on an elevation towards which many roads lead to realize the great importance of an intimate association of science and art, for the theory of medicine is a science but its application is art. Physicians, of all men, dare not forget in this age in which science has triumphed that in dealing with life there must always be hypotheses and consequently art must eventually triumph. The practice, the doing, is the ultimate thing. After trying this and trying that and throwing aside something here and something there it is in the final workable theory that the truth lies, and therefore everything that turns on the varying life processes should be available for man in his moment of torture. This educational feature was a developing phase in Dr. Cushing's mind and revealed itself on many occasions in the staff meetings. It was not long ago that he said to me, 'We must have a room in the hospital near the wards for the professors of physiology,' and pointed out one that he thought would be convenient.

"Tentative efforts have been made from time to time to show the authorities that hospitals will not completely outgrow their medieval spirit until they recognize that they must follow their recovering patients either to their homes or to convalescent stations. A few years ago this idea began to take form in some large hospitals. Some saw that if physicians assumed the charge of disease they must look farther than a face to face consultation with the sick. Otherwise their holy office would be taken from them and handed to sanitary engineers. An early evidence that this idea had taken root with our friend and was bearing fruit was his effort to have flower beds and window boxes about the hospital. Soon he was ready to sustain an extension of the visiting nurse service to the outpatients; then came the



association of Rainbow Cottage with the hospital. He awakened to the fact that his powers could be used in this direction and he gradually took a more or less public position on general health matters. But this part of his life was somewhat of a conflict between temperament and desire. His tendency and inclination naturally lead him to his private clientele, his home, his study and a few choice friends. Thus his best work was by a personal appeal. Outside the lecture room he appeared but little in public. He shrank from the public eye. Yet having once been convinced that the physician should have other than private aims and that the sick room and study ought not to be his whole world, he went enthusiastically into sociologic medicine. Many of us watched this development with great interest and I believe it was with him a moral triumph.

"Fastidious and reserved he had not the temperamental qualities for public leadership, but he had the moral qualities for it. The rapid growth of the interests to which he gave his earnest support prove this. When a man who has made one career and whose time is full to repletion with his work moves out of the sphere he has formed for himself into another which must rob him of his rest and leisure he has earned, the world recognizes a conscience.

"The training, routine, occupation and ethics of the physician are all against a semipublic commingling with people and few can know the effort necessary to conquer this repugnance. When therefore one who is completely the physician by temperament and by education, redirects his thought forces, controls inclination and modifies character so as to overcome this antipathy he gains a mastery over himself. And with this self mastery there had come to Dr. Cushing a freedom of the spirit that gave him increased power and influence and presaged for this last phase of evolution an even greater productiveness than in any of the foregoing. There must always be a double sense of loss when life is cut off in its ascending stages of development and when, as in Dr. Cushing's case, fulfilment and promise alike held so much of value for others."

The Western Reserve Medical School was represented by Dr. Charles F. Thwing, President of the University, who said:

"In Dr. Cushing was found a unique union of precious ele-

ments of character. He had discernment. He saw truth clearly; he reasoned upon truth accurately; he inferred truths logically. Lord Kelvin says, that in sailing a ship, logic is as important as log. In Doctor Cushing the log, the record, was straight, and the logic was sound.

"With discernment was joined discretion. Discretion is discernment *plus* good taste. The man of discretion, as Newman says in a famous and eloquent passage, 'is ever ready, yet never in the way; he is a pleasant companion, and a comrade you can depend upon; he knows when to be serious and when to trifle, and he has a sure tact which enables him to trifle with gracefulness and to be serious with effect.' Such was our friend.

"To discernment and discretion is to be added the moral element. He was conscience incarnate. He obeyed the categorical imperative. He heeded the 'I ought.' What is more, he helped us all to hear and to heed; he could say 'thou shalt,' but his good taste turned thou shalt into thou wilt, yet he made our wilt still our obligation. We did what he said we ought.

"With these three great elements was joined efficiency. He did things. He was a mighty constructive force in this community. I wish to bear testimony to his help given me in doing things: help constant, wise, untiring, achieving. The call for this, our meeting, illustrates this quality. The societies and organizations concerned, with scarcely an exception, are organized for doing. He had a hand in things as well as a mind in thought and a heart in appreciation.

"This quartette of virtues and of graces were joined together in a character: in a character brave without boldness, tender without softness, based on principles without sacrificing details faithful to great duties without forgetting the handiest task: a man of vision without visionariness, unsullied, without fear and without reproach.

"On the tombstone of Doctor John Brown, of Edinburgh, author of 'Rab and his Friends' are cut these words, taken from the book of the Prophet Daniel. 'But go thou thy way till the end be; for thou shalt rest, and stand in thy lot at the end of thy days.' These words might fittingly be inscribed upon the marble bearing the name of Doctor Cushing."

The following obituary, written by Dr. J. G. Mumford of Boston, Mass., was read by Dr. L. W. Ladd. Through the



courtesy of the *Boston Medical and Surgical Journal*, for which it was written, permission has been granted to print it in this Journal.

"Dr. Edward Fitch Cushing, of Cleveland, and a distinguished graduate of the Harvard Medical School, died on March 23, 1911, from a malignant obstruction of the colon. He was in his forty-ninth year. Dr. Cushing's acute illness lasted but a few days; indeed he was busy about his work up to a week before his death. A sudden and unexpected intestinal obstruction overtook him. It was relieved by operative anastomosis, but he did not rally, and succumbed shortly to a double pneumonia.

"Dr. Cushing's death brings upon our profession a serious loss,—and in more than the conventional sense. He was a man of rare attainments, untiring, devoted, courageous. At a largely attended citizens' meeting held in his memory at the Lakeside Hospital on March 26, 1911, a prominent layman called him the most eminent citizen of Cleveland. There were remarkable qualities in the character and career of Dr. Cushing which justify this eulogy. His was one of the brilliant minds of our profession,—acute, observant, retentive. His student contemporaries will not forget his astonishing comprehension; his lucid explanations; his practical applications and his unfailing resourcefulness. He was an omniverous reader and a profound scholar. He ranged widely through our literature, and stored great information, ready for instant and practical use. He was highly trained. After completing a brilliant service as house-surgeon at the Massachusetts General Hospital he received an appointment to the medical service in the same institution, where his work was equally effective. He served as house-physician to the Boston Lying-in Hospital also, and spent time in Europe studying diseases of children. In such fashion was he equipped for his career.

"Unlike many other men of fine mind and high attainments, Dr. Cushing was modest for himself and keenly appreciative of the opinions and work of others. He listened to, and assimilated, the views of his colleagues. His intellectual and practical charity were constant and unfailing. He thought no evil. He assumed fair play in others even as he himself practised honorable dealing. He encouraged effort, though it might come to small ends; and he applauded eagerly every sane, forward, progressive and honest endeavor which might lead to the betterment of medicine.

"Throughout his professional life he gave himself to the welfare of the community in which he lived,—without thought for the wider fame which might easily have been his,—but earnestly, faithfully, constantly, for twenty years he devoted his great talents to Cleveland and his native State of Ohio. He accomplished much; his fellow-citizens loved, respected and trusted him; and so he came to hold with them a place almost unique among modern physicians. We all know and respect the highest type of family doctor; the faithful, devoted friend, the wise counsellor, the sound adviser. Dr. Cushing filled this place in a perfect degree, but he brought to the service those great qualities of brain, as well as of heart, whose loss is mourned by his people.

"The outline facts of Dr. Cushing's life appear simple and are soon told: He came of a distinguished line of physicians. His great-grandfather was a physician in New England; his grandfather, Erastus Cushing, was a pioneer and one of the early physicians of Cleveland; his father, Henry Kirke Cushing, a surgeon of the Civil War, practised medicine in Cleveland almost to the time of his death at the age of 83, less than two years ago. Harvey Cushing, of Johns Hopkins and Harvard, is Edward Cushing's younger brother.

"Edward Fitch Cushing was born in Cleveland in 1862; was graduated A. B. from Cornell in 1883 and M. D. from Harvard in 1888. After completing his postgraduate studies he began practice in his native town in 1891, when his father was still active. In the course of years the son took over the father's work. The younger Cushing soon made himself felt in the community. Important assignments were given him, and he created new enterprises. He was visiting physician to the Lakeside Hospital; he fostered the Cleveland Medical Journal, which owes much of its success to his leading and his money; he promoted and established the Babies' Dispensary, a splendid work; he was foremost in organizing the Cleveland Medical Library; and in reorganizing the prosperous and distinguished Western Reserve Medical College. In all questions relating to public health his advice was sought and was liberally given. He was a Vice-President of the Harvard Medical Alumni Association. Such were a few of his many activities. His life was one of service. He was an ideal clinician; perhaps there was no greater



in this country. And with all this, his was a life of self-abnegation. Rarely in this modern world do we see great talents so consecrated to plain duty. We have our professional leaders, our great martyrs to science, our widely heralded surgeons, our Walter Reeds, our heroes of the laboratory;—Edward Cushing might have ranked them all; but he chose what seemed a humbler field; to give himself unreservedly, faithfully, brilliantly to the daily service of the sick. He set a standard which may well be an inspiration and an example to every practitioner, humble or famous, in the land; and in the short space of twenty years he accomplished a work and gained a loyal devotion in a great community which for generations may not hope to see his like again.”—J. G. M.

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### **The Lakeside Hospital Memorial Meeting to Dr. Cushing.**

A meeting in memory of Dr. Edward Fitch Cushing, a member of the Visiting Staff of Lakeside Hospital, was held at the Hospital on Sunday afternoon, April 9, 1911.

Mr. Samuel Mather, in opening the meeting, made the following remarks:

“It seems very fitting that we should be meeting here together, within the walls of this building this afternoon to express our deep sorrow for the passing away of one we hold so dear, and to express our respect and admiration for his great ability and his rare character; here, within the Lakeside Hospital where so long as I can remember, before these present new buildings in fact were erected, it was his practice daily to come and administer to the wants and sufferings of those who were sick. He was always an inspiration at their bedsides, and brought healing to their distressed souls and suffering bodies with his deep sympathy and wise counsel. We are all stunned by his sudden departure. We can hardly realize that within a few days he who seemed so well should have passed away, he who restored so many sick ones of our households should not have been restored to health himself. It does not seem possible to get along without a Dr. Cushing in our midst. His grandfather took care of our grandfathers, his father of our fathers, and he, of all the members of our own households.

“I shall not attempt to speak of his ability as a physician and what he has done to raise the standard of his profession in

this community. His very arrival and presence inspired confidence in all. His wonderful eyes would seem to pierce down into the innermost parts of our bodies and discover what was amiss, and his ability offered many comforts and the right treatment for our sickness. His very presence was hope-inspiring and that, we all know, contributes largely to the recovery of our bodies. It seemed as though he could almost at a glance comprehend the natures of our little ones as well as their physical needs, and the advice and counsel that he gave parents regarding the bringing up of their children with reference to their mental as well as to their physical good was a great aid to many households in this community. Great as was his activity and usefulness as a physician in our households, his usefulness and activity extended far beyond that. I shall not attempt to say what he was to our medical college or to this hospital, but I wish to speak just a word regarding the Pure Milk Commission, which he organized and founded himself and in which he was the dominant factor. In fact, although so unselfish and so self-effacing in whatever he was interested in, he was always the dominant spirit, the inspiration of all these numberless activities, many of which will be mentioned later by other speakers. I feel that my words are very inadequate to express what I feel regarding Dr. Cushing. He lived among us so quietly, so unobtrusively that I think we hardly realize how great a man he was. Of all the men I have known I find it difficult to recall any with intelligence more piercing or more illuminating, will power more strong, and personality more confidence-inspiring than was possessed by Dr. Cushing.

"It seems to me that his death is an irreparable loss to the entire community and that time alone can make us realize how much he has been to us in many ways."

Dr. H. H. Powell gave the following address:

#### DR. CUSHING AS THE FAMILY PHYSICIAN.

"It is fitting, before speaking of Dr. Cushing as the family physician, to allude briefly to his preparedness for the important field of labor he was destined to fill. What were the cardinal factors that enabled him in twenty years of service to attain a position so high, and accomplish so much of lasting good for the people of Cleveland.



"In his case heredity can not be overlooked. For nigh a hundred years his paternal ancestors in direct line had been family physicians. He was the fourth in lineal descent who had devoted their lives to the study and practise of medicine. It is impossible to pass lightly by the influence of these many years in the formation of type of mind and character. Many illustrations of similar influence have been noted in this country and abroad. Dr. Cushing was carefully prepared for college in the schools of Cleveland. He entered Cornell University and received the degree of Ph. B. in 1883. In 1888 he was given the degree of M. D. by Harvard University. He was House Surgeon in the Massachusetts General Hospital in 1887 and 1888, House Physician in the Boston Lying-in-Hospital in 1889, House Physician in the Massachusetts General Hospital in 1889 to 1890. In 1890 and 1891 he visited the hospitals in Goettingen, Vienna and London.

"Dr. Cushing was particularly fortunate in taking up the study of medicine at a time, when, what we may term the early morn of modern medical science, was shedding its light in many directions where most needed. He was thus enabled to acquaint himself with the recent developments in the basic department of modern medical science. Such then was his preparedness when in 1891 he began the practice of medicine with his father who was anxious to retire from active practice. His father was a man of remarkable ability and had been regarded as one of the leading physicians of the city for many years. He was the physician of many of the oldest and most influential families. It would have been impossible for a man of mediocre ability or fitness to have succeeded in such a field no matter what the introduction might have been. Dr. Edward Cushing, as the sequel proves, was fully qualified to be the successful successor of his eminent father. He rapidly gained the confidence of his families and of all with whom he came in contact. Just here we may ask what were the personal traits that aided in the accomplishment of such great results. He was a man of high ideals, with ability and learning sufficient to reach more of them, by far, than the average man. He had wonderful energy and concentrated all his powers upon his professional life. He was a student always and was ever prepared for emergencies. His was a strong personality giving forth what we may term a personal magnetism that few could resist. His personality dominated

those with whom he came in contact. I have known few physicians who had such perfect control over their patients. His request that this, that, or the other be done was sufficient—such was the confidence placed in his ability and the high regard entertained for him. He was their shield from dangers feared and their rescuer from dangers present. His natural nervousness was diminished in the face of imminent danger and his sympathetic voice diminished fear. Those who have not known Dr. Cushing in the sick room have not known him at his best. It was at the bedside of a critical case that he showed his masterful skill and inexhaustible resources. It was there he was the model representative practitioner of modern medical science. Few family physicians were better posted in the literature and work of the experts in the various specialties of medicine and surgery, and as an able diagnostician he quickly gave his patients the benefit of his skill, saving many lives by his prompt action. He was sufficiently learned to realize his limitations. This is a quality of immense value in the family physician of today and unfortunately is not common. Excessive specialism and specialists have tended to weaken the bonds that were wont to bind physicians and their families, too many are influenced by the fashion of the day and seek the specialist—often suffering the consequences of unnecessary or unskillful work. Dr. Cushing through the confidence he inspired was able to direct all the medical requirements of the families under his charge.

“Thus have I summarized the fitness and the traits of Dr. Edward Fitch Cushing, the beloved, learned and skillful family physician, the arduous philanthropist who gave much of his time and ability to the poor through the many agencies he so materially aided in establishing. We can no longer look upon his inspiring countenance or listen to his words of wisdom; as another has said, ‘We mourn his loss but are thankful that he has lived.’ We bow to the inscrutable decree of his Maker. Many stricken hearts are filled with gratitude for him; gratitude born perhaps at a time when some precious life was in the balance and nourished through many years by the innumerable confidences permitted only between family physician and family. To such I would say, you have been vouchsafed a great privilege to have had such a man for your friend and councilor. He has gone but his helpful precepts will remain with you to guide you for many years. May the great work that he has accomplished prove an



inspiration to those who come after him, and be the means of producing more such family physicians."

Dr. H. J. Gerstenberger gave the following address:

EDWARD F. CUSHING AS PEDIATRICIAN AND  
PHILANTHROPIST.

"My first acquaintance with Dr. Cushing as pediatrician was in my senior year at the Western Reserve Medical College, when I attended his lectures on diseases of children. The impression that he made on me then, as he did on all of the students, was that of a wonderfully clear teacher, and of a personality commanding at all times the greatest respect, a respect born not of fear, but of unconscious admiration and devotion.

"Handicapped by lack of sufficient clinical material for adequate teaching, he had to resort to didactic lectures, but he knew how to present them in a form that was devoid of that dryness which to the medical student of the clinical years seems omnipresent in the absence of the patient.

"Although spending six years in postgraduate work, at home and abroad, and equipping himself with a training that must have been at that time most exceptional, as it still would be even today—nearly twenty years later—he decided to enter general practice, and to carry on the work begun by his grandfather and father.

"The course that he chose explains the fact that although he was, to my mind, the most able clinical pediatrician of our own country, the medical world at large knew little of him. His other activities prevented him from writing and giving outsiders an opportunity to get acquainted with his ability in this special field.

"As Professor of Pediatrics at the Western Reserve Medical College, he kept closely in touch with the rapid advances of modern pediatrics, and it was his sole desire in this position to promote the welfare of this department of medicine and not of himself. It was his definite decision to retire from active work in this department of the University at the age of 50 years. This fact, ladies and gentlemen, better than any other brings out that part of his character which made him so great—personal unselfishness. Although at a stage of life when other men, in similar circumstances, never dream of relinquishing position and

power, although still enormously able and active, although loved by many and admired by all, although in a position to do anything he desired, he chose, as he always has done, not to consider himself for a moment, but to have as his sole object the development of the work, in which he was interested, to its greatest efficiency with as little delay as was possible. In him personal unselfishness was developed to the highest virtue and stamped him the really big man that he was.

"Dr. Cushing, as philanthropist, was presented to me most clearly in his intimate relation to the Babies' Dispensary and Hospital, a work, which of all others was most close to his heart, a work which he, more than any other one individual, helped to establish.

"During the fall of 1906, a few months after the Infants' Clinic had been started in the poorest and most crowded section of the city, Dr. Cushing happened to meet me here in one of the rooms of Lakeside Hospital. He immediately used this opportunity to encourage me, and to tell me how glad he was that such a work had been started, and to assure it his earnest interest. He saw in this work the beginning of a Babies' Hospital, something of which he had long ago dreamt and thought, because he had realized its great necessity.

"It was but a few months later, in December, 1906, when, solely on his own initiative, the small work of the Infants' Clinic was put upon a firm basis and incorporated as the Babies' Dispensary and Hospital of Cleveland. From that day to this, he has been the moving spirit and the guiding hand and in this rôle I had the opportunity of seeing in him the rare type of philanthropist that he was. He gave frequently and quietly. He chose such gifts as were necessary, yet not apparent to any but medical men. He fostered the library, the clinical work and the laboratory. But a few weeks ago, he sent me a check for journals which he thought, as he wrote, 'must soon run out.' In reality he knew that the time had expired, and that unless he gave the funds, in all probability, the periodicals would have to be dropped. It was his promise to equip the x-ray room of the new dispensary, and although, through a most generous gift this was not absolutely necessary, he, but four days before his illness, gave the large amount to the endowment fund.

"But these activities of Dr. Cushing, great as they are, represent the least in him as a philanthropist, for he gave much more



than this. He gave, at any and at all times, himself as he was, the man of clear thought and perspective, of ability, of energy, of courage, of will power, of influence and position such as only three generations of eminently able men, he together with his father and grandfather, could create—not for himself, but for the babies. His goal was not only to care for the ill infants, but also to teach and develop nurses and physicians, to study the causes of, and to discover the remedies for the large loss of infant life, in other words to establish an institution that would not only care for the sick, and bring them on to recovery, but would also be a factor in the furtherance of American Medicine.

“Dr. Edward Fitch Cushing, as I knew him, was a philanthropist ideal and real, an eminent teacher and clinician, a man in a class by himself.”

Dr. G. N. Stewart spoke as follows:

“I shall not attempt to wed to appropriate words the emotions of this hour. It is a hard thing for me, who knew him so well as a friend to stand here today as a spokesman for the faculty and the profession of which he was so eminent a member. I desired earnestly that this cup might pass from me and when Dr. Crile urged me to speak I said to him, “You, of all others now with us, are the man who ought to say what should be said.” He replied, “You knew Cushing well, but I knew him better and I feel that I cannot do it; it would be too much for me.” I accepted his plea and saw that it was just, and I assumed the sad task of trying to express our sense of what we have lost. And now I fear this is too much for me also. I suppose that I ought to have written down something which could be read and thus to have girt on some armour of defense against the crushing sense of sorrow and desolation which seems to fill this room. I thought of doing so, and then it suddenly seemed impossible in any adequate way to put down on paper, in formal words, what he was to us who knew him as friend, as colleague, as brother in a common profession, or what he must have been to so many of you as guide, counsellor and stay in time of trouble. It seems now just as impossible to say anything fitting or adequate as it did then to write it. What can we say? Our friend is gone! Edward Cushing is dead! When I have said that, I have said all. Anything else I could add would appear trivial. What can be said in the face of such losses as that which we

deplore has been said ten thousand times, and the saying of it has never really satisfied the heart of man and never will. The iron still hot upon the anvil and the artificer who should have fashioned it, suddenly gone on a far journey. The plough deserted in the furrow while the sun was still high. The shuttle silent in the loom with the web half woven. Work cut short untimely! The man of power, enthusiasm and usefulness called away in his prime! This has been the immemorial theme of the poet, the philosopher, the prophet and the preacher. And they have made nothing of it. How should poor I attempt to scrutinize the inscrutable?

"But if I knew our friend at all I feel sure that he would not have wished that this hour which we dedicate to his memory should pass without any allusion to his work. For the man lived in his work, and will live. Details would be out of place and, for many of us, would be superfluous. The results of his manifold activities are evident upon every hand. Mr. Mather has spoken of his position as a citizen. He has told us, and we know it, how this quiet self-effacing but most persistent worker impressed his personality upon the civic life of this big, bustling town, especially in questions related to the public health, as in the organization of machinery to combat the spread of infectious diseases and to safeguard the purity of the milk supply, on which the health and well-being of our children so intimately depend. And if with his characteristic qualities he was able to impress himself upon our public life, how much more, think you, did his influence show itself in the small and intimate circle of a college faculty. I think the keynote of Dr. Cushing's great influence in the faculty was the fact that he was known to be absolutely devoid of any desire for self-aggrandizement. This quality was so conspicuous that it was always taken for granted. So that when he brought forward a proposal the idea never occurred to anyone that he had any other object in view than the good of the school. His proposals might not always be accepted, nor was any man more ready to yield to a criticism shown to be just, but that he meant exactly what he said and promoted his schemes for precisely the reasons which he gave, was assumed as self-evident. His practical sagacity too was such as is perhaps rarely combined with such idealism and such enthusiasm for his ideals. In the deliberations of the faculty he was a tower of strength, and some knotty point of business or policy was often



cleared up a terse practical suggestion, quietly thrown out in a conversational tone of voice in the middle of a discussion tending possibly to lose itself in generalities. It is related that for a long time after the death of Mirabeau when questions of difficulty arose in the Constituent Assembly all eyes turned instinctively to the vacant chair where he had been accustomed to sit. In our small college faculty an empty chair where once sat wisdom and counsel may also long continue to draw our eyes.

"Perhaps the most striking feature of his work as an organizer was the largeness of his conceptions and the width of his outlook. It was really the development of medicine as a whole in this community, as a harmonious and indispensable setting for a great medical school, that he worked for, and apparently on a consistent plan throughout. Quiet as he was in his habits, undemonstrative in his methods, the schemes on which he brooded in the seclusion of his study in time proclaimed themselves from the housetops in accomplished facts, and will yet do so, perhaps still more. He was a mighty worker, with such a head for planning and such wisdom and perseverance in carrying out big plans, but withal such a positive genius for keeping himself in the background that to the superficial observer the successive developments which he inspired seemed almost to have come of their own accord in the fullness of time. What he did for medicine in this city, largely by working through others, is best appreciated by those who know what medicine and medical education were in Cleveland fifteen or twenty years ago and what they are today. While the change has, of course, been the result of the labors of many men, no single person could be compared with him in the influence he exerted. This influence was a peculiar one, due partly, no doubt, to his hereditary position in the community, but very largely to his personal qualities, and the confidence in his wisdom, his perfect integrity and singleness of aim, which, without being sought, was everywhere spontaneously accorded him. Thus it was that his quickening touch, usually exerted, as has been said, through others, shot life and vigor through every fibre of the medical body corporate in his native city. Now it was the Medical Library which he spent his energy upon, as a great apparatus for bringing the whole profession in Cleveland into touch with what was being done throughout the world in their art and science. Again, it was the Cleveland Medical Journal, which he was resolved should represent more

adequately the activities of the local profession and arouse their loyalty. Then it was the development of the hospital and the dispensaries, including the Babies' Dispensary of which Dr. Gers-tenberger has spoken. Above all, particularly in later years, he devoted his best thought and his untiring efforts to the advancement and improvement of the Medical School. Here he was particularly interested in two things: the placing of the clinical branches upon an endowed basis, and the encouragement of clinical teaching and research by this and other measures. He understood in a wonderful way for one who was not a specialist in laboratory work that, however important the development of formal medical education might be, it was from the Medical School and from hospitals closely affiliated with it as centers of research that the quickening ferment of enquiry alone could spread which would eventually leaven the whole lump of everyday practise.

"I cannot think it is inappropriate to mention what was in his mind the last time he was in my laboratory, the H. K. Cushing Laboratory of Experimental Medicine, founded by Mr. H. M. Hanna and Col. Payne, and named after his father. In this laboratory he took an enormous interest and used to drop in whenever opportunity offered. It was, I think, eight or ten days before he fell ill that he came into the laboratory. He stayed three-quarters of an hour and talked apparently with all his characteristic earnestness and infectious optimism, especially on two topics which most deeply engaged his interest: the progress of the effort for raising additional endowment for the medical school, and the establishment of the so-called fifth year, a scheme for sytematizing to a certain degree the work of our young graduates during the year after graduation when they are filling appointments as internes in the hospitals. He was most anxious that the fifth year scheme should have a fair start this year. He saw great possibilities in it and felt that if it were properly carried out, some of these young men might have their activity directed into research work and might receive an impulse which would inspire their whole career. It was hoped that some of them might desire, and might have the requisite preparation to attempt, some work in the laboratory before taking up their hospital appointments, and he was especially concerned lest in the comparative slackness of the summer vacation months they might be discouraged at the outset by lack of sufficient oversight and



direction. This was particularly on his mind because, as many of you probably know, he had planned to go away to Europe for a while about the end of March. We had served together on a committee to develop the fifth year scheme. He knew that I was much interested in it also, and, in a way, he seemed to hand the matter over to me for the furtherance and support which for a while he could no longer give it. It would be easy now to read into his insistence upon this subject the pathos of presentiment, a foreboding that his days of planning and striving for the common weal were almost over. Dr. Crile has since told me that he had noticed in him for some time a certain significant lessening of energy. This, however, was not the case with me, possibly because I had not seen so much of him. In that last talk he seemed as full of life and virile interest in the affairs of life as ever. I hope it is not out of place, I do not think it can be, to mention these matters here. I feel that he would have wished that we should think even more of the work which he had planned but which he was not destined to see accomplished than of that which he actually brought to fruition. I cannot imagine any more suitable way of honoring the memory of this devoted friend of medical education and research than by striving to carry forward to completion those large and sagacious plans to which so many of his most laborious hours were given, which he dreamt of, and hoped for and worked for with his whole heart and strength and mind.

"There is one other thing which comes into my mind—it was told me by Dr. Crile, who, of course, was much with him during his last days—and I hope that this, too, it will not be out of place to mention. Amidst the cares and worries of his large practise I suppose Dr. Cushing had many anxious hours. He seemed to have less anxiety about his own case, knowing well how it must end and how soon, than he often had for those of his patients. The spectacle of that brave man dying as a philosopher, above all as a medical philosopher would wish to die, is something too precious to be passed by in silence in this assembly where there are scarcely any, I suppose, who were not united to him by some personal tie.

"And now I have said my say, and as I foretold, it amounts to nothing. We have lost our friend. Our dear comrade has fallen in the ranks and we must march onwards without him. I end as I began. Cushing is gone from us! What else have

I said? What else have you felt? Nothing, nothing! That is all that matters."

The meeting was then concluded with prayer by Dean DuMoulin.

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### Department of Therapeutics.

Conducted by J. B. McGEE, M. D.

**Salicylates:** August Seibert in the *Medical Record* for March 11 states that the salicylates often do not act promptly enough to prevent irreparable damage to the heart, and more often are not thorough enough to destroy the less accessible rheumatic organisms in the body tissues, when given by the mouth, aside from the fact that the disturbance of digestion, and toxic symptoms frequently compel the physician reluctantly to stop their use. This dilemma prompted him four years ago to introduce salicylate of sodium into the blood current by hypodermic injection. His first case, an otherwise healthy man of 40 years had for two months resisted the largest possible doses by mouth, up to 30 grains six times daily. Baking in hot air, and Bier's stagnation treatment during four weeks gave negative results. Twelve c. c. of a 20% sterilized watery solution of fresh salicylate of soda were injected under the skin of the outer thigh twice daily. Although painful the patient reported the first night without pain, the next morning the injections were continued, without other medication, and during the next two weeks brought the temperature to normal and permitted active and passive movements, etc., so that a month after the beginning of the injections, the patient could bend his knee to a right angle, walk with a cane and write long letters. Some of the affected muscles, however, had become atrophied during the three months of inflammation before the injections were resorted to, but earlier injections would certainly have prevented this. Another case, with joints in a state of marked rheumatic inflammation for two months, was similarly treated and made a complete recovery. Other cases responded equally well to this line of treatment. None of the injected patients presented symptoms of heart depression, ear buzzing or profuse sweating. In acute rheumatic infection of the joints, heart, pericardium, pleura, and central nervous system (chorea) he advises 10 c. c. of a 20% sterilized solution of fresh salicylate of sodium to 100 pounds of body weight, to be injected 15 minutes after an appropriate cocain solution has been injected under the same spot. If the injections are made earlier than this the solution will cause pain. This is repeated every 12 hours. In severe cases the dose may be increased to 15 c. c. of the solution to 100 pounds of body weight. These doses are essential to the success of the treatment, as smaller ones will be without effect. The results may be noticed within three hours after the first injection, joint stiffness, pain, fever, and pulse rate diminish, and the general feeling of the patient improves. They should be given every 12 hours, as if omitted for 24 hours in severe cases the symptoms will grow worse. In chronic cases he recommends an oily solution, sterilized and specially prepared. The entire absence of all the toxic symptoms which are sometimes seen when the salicylates are given by the mouth is one of the pleasantest features of this method of treatment.

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**Quinin and Urea** In the *Medical World* for March, A. M. Hamilton Hydrochlorid: considers the hypodermic use of hydrochlorid of quinin and urea in malaria. The use of this salt in malarial affections was suggested through Robert Bartholow, and S. Solis Cohen has had gratifying results from its use. He points out four important phenomena



observed, following the hypodermic administration of the salt: (1). The marked superiority of this salt over the other preparations of quinin, (2). Periods of  $6\frac{1}{2}$  days approximately, or of 13 days approximately, during which patients, previously exhibiting irregular recurrences of paroxysms, or regular quotidian, tertian, or quartan recurrences, remain free from paroxysms following a single injection of this salt in dosage of 15 grains. (3). The similarity between these periods of  $6\frac{1}{2}$  and 13 days respectively, and the period of cyst formation and sporozyte development in the sexual cycle of the parasite as observed in the mosquito. (4). The diagnostic value of such injections in proving or disproving malarial infection when the peripheral blood is negative upon search for the parasites. He also emphasizes a fifth point, i. e. the superiority of this salt in pernicious malaria. He claims that this salt has the advantage of extreme solubility, and consequent rapid absorption. It has a disadvantage in that it tends to produce a slough, and therefore extreme care is necessary that none of the solution be permitted to come in contact with the dermal structure; the injection must in consequence be made deeply under the skin, but not into muscular tissue. In a long series of cases at the Philadelphia Hospital, it was demonstrated that the injection of this salt caused a period of freedom from paroxysms varying from  $6\frac{1}{2}$  to 13 days. After this lapse of time, the cases would, if tertian, return to the tertian type, but only very rarely did the quotidian type resume its usual form, more often taking on the tertian characteristics. It was demonstrated that cases showing symptoms of malarial infection, and yet having negative results in the search for the parasite in the blood, would, so soon as the salt was administered, immediately present the organisms, thus indicating that the organisms remained latent in the internal organs. The treatment of malarial infection by means of the hypodermic injection of this salt consists in the use of dosage varying from 15 to 23 grains. Later this method is changed to oral administration of the salt in capsules. Attention is also called to the value of this salt as a local anesthetic. It seems destined to supplant cocain in many of the uses to which cocain has been commonly applied. Its advantages over cocain are: (1) Its absolute safety. (2) The fact that it may be prepared in quantity and sterilized by boiling before use, cocain occasionally developing strong toxicity when boiled. (3) The fact that it is not necessary to induce edema in making the injection. (4) The long period of anesthesia. (5) The production of an exudate of fibrin which acts as a hemostatic, in cases in which such action is desirable.

It has been found that the anesthesia lasts for four or five hours when a  $\frac{1}{4}\%$  solution is employed, and from four to five days when used in  $\frac{1}{2}\%$  to 1% solution. The long duration of anesthesia makes it particularly valuable in operations about the rectum, as in hemorrhoids, fistula, etc. It has been found to slightly retard early union when employed in a strength as great as 1%: hence if primary union is essential, it is wise to use it in  $\frac{1}{4}\%$  to  $\frac{1}{2}\%$  strength.

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**Pyelitis:** Joseph Brenneman, in the *Journal A. M. A.* for March 4, treats of purulent infections of the urinary tract in infancy, stating that in a prophylactic way there is little to do except to observe local cleanliness, to avoid diarrheas and infections, and to maintain the general health at a high level. After the disease is established the child should be kept quiet, its diet carefully watched, and it should be given an abundance of liquids, especially water or alkaline waters to flush the urinary tract. The English writers give large doses of alkalis, especially potassium citrate, half a dram to a dram or more a day in divided doses. Nearly all German and American clinicians depend upon urinary antiseptics, hexamethylenamin and phenyl salicylate

(salol) as of first value and recommend alkaline drinks as useful in diluting and possibly alkalinizing the urine. Brennenman's method is to crowd water in every way, to try alkalies first and if there is no improvement in a few days to give hexamethylenamin or salol in doses of one to two grains every three or four hours to an infant one year old, and to keep this up for a long time to avoid relapses. In every child, and especially in every female infant, that has a continuous or intermittent or high temperature, without obvious clinical cause an examination of the urine for pus is imperative.

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**Diet:** Louis Fangeres Bishop in the *N. Y. Medical Journal* for March 4, considers diet in heart disease and arteriosclerosis. The management of heart disease and hardening of the arteries pertains, in a great measure, to regulation of food. He refers to one patient, a young man, in whom heart, blood vessel and kidney diseases had developed as the direct result of eating enormous quantities of meat. This is an extreme example of protein poisoning; in lesser degrees we meet it every day in the week. Protein food is very important in building up the tissues, etc., and it is the food that produces great leaders and brain workers, but it is also a food that in the present day is terminating prematurely some of the best lives in the nation. For these reasons, when on account of threatened danger to various organs protein is reduced, the power of the food to produce heat, energy and so forth, by other means, must be considered. So we have a sort of puzzle, to supply the necessary calories without exceeding the protein allowance. In advising a diet for heart disease and its related conditions, arteriosclerosis and kidney degeneration, we may, in many instances, accomplish a good deal by simply reducing the quantity of food as a whole, without paying much attention to its quality. When the kidneys are healthy and competent, and there is chemical reason in the intestinal tract for diminishing proteins, an ordinary mixed diet in proper quantities is all that is required. Indeed there are certain cases in which proteins may be increased. The question of fluids in heart disease is an important one. He has often seen the circulation markedly improved by the simple withdrawal of an excess of fluid. A perfectly healthy person soon eliminates an excess of fluid taken into the body, but this is not true in disease. The overloading of the system with water puts an extra burden upon the heart, and in disease leads to very serious results. This is particularly so in a case of broken compensation. In acute heart disease the simplest and best diet to begin with is a milk diet, but that must soon be supplemented by other simple and nutritious foods. In chronic heart disease the quantity of food should be reduced to what is necessary for the maintenance of the body, the weight and strength. The food should be divided into five small meals, the largest being taken in the middle of the day, and the food should be as dry as possible. In cardiovascular disease, milk sugar is a very valuable addition to the diet for many reasons. The prescription of a diet is like writing a prescription for an individual case—however many prescriptions for other people you may have at hand to copy, there is always something individual that suggests itself in the case.

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**Amenorrhea:** *American Medicine* (from the *Practitioner*) for February, states that in the amenorrhea of young women, permanganate of potash may restore menstruation after the lapse of two years or more: sometimes it may restore the discharge within a few days or, the immediately succeeding period being missed, the one next may appear in due course, or it may take six weeks or even two months before the drug succeeds. This salt is useful in cases of scanty and perhaps delayed menstrual flux, the interval varying from six weeks to two months. The permanganate in a case such as this brings on the



period at the proper time, together with an increase in the flow. It is useful also when a chill prevents or delays the menstrual flow. Permanganate of potash may be given daily until the catamenia appear and complete their course, when the salt should be discontinued. It should be recommended four days before the access of the next period, and continued until the flow ceases. It is useful too in girls who on leaving the country and coming into town suffer from arrested menstruation. Also in the amenorrhea induced by sea sickness, and in women between 30 and 40, generally married, who, whilst rapidly increasing in weight, suffer from a diminished menstruation. The drug is given up to one, two, or more grains in pill form thrice daily after meals. It is advised to make the pills according to the formula: permanganate of potash gr. i, kaolin and petroleum cerate in equal parts, q. s. Certain observers deny that it produces abortion, but some cases of abortion apparently due to the drug have been noted.

**Atropin:** Heneage Gibbes in the *American Journal of Clinical Medicine* writes concerning the use of atropin in hemorrhage, and details a case that shows conclusive evidence in its favor. A doctor, a friend of his, was troubled with a growth on one of the turbinates which caused a most troublesome cough. The growth was removed and after some time and trouble the hemorrhage was stopped, and he started for home, 70 miles away, by train. On the journey the bleeding started and continued after he reached home in spite of all that several physicians tried. This continued for over 30 hours, when 1-50 of a grain of atropin sulphate was injected into his arm. After a few minutes he whispered "not a drop of blood since you gave me that injection" and from that time on there was not the slightest hemorrhage. The result showed the great and prompt value of atropin in this condition.

**Thyroid Administration:** In the February number of the *Monthly Cyclopaedia (Southern Medical Journal)*.

J. McC. Tompkins summarizes the therapeutic indications for the uses of thyroid. (1) In those cases in which the general development shows that there is clearly a congenital or acquired lack of thyroid secretion—cretinism and myxedema. Myxedematous symptoms, the author remarks, often coexist with enlargement of the gland, and also follow upon old cases of exophthalmic goiter. Common mistakes are to confuse myxedema with simple obesity, neurasthenia and nephritis. At times the therapeutic test may be of great diagnostic value. (2) In certain chronic skin affections such as psoriasis, chronic eczema of the dry scaly type, ichthyosis, sclerema neonatorum, scleroderma, anidrosis, multiple fibromata cutis, and multiple senile keratoses, in which its employment will cause rapid clearing up of the keratotic plaques. (3) In general or localized accumulations of fat, simple obesity, adiposis dolorosa, and multiple lipomatosis. (4) In internal hemorrhage. It is useful here on account of its properties of lowering blood pressure, and of shortening the coagulation time of the blood. In non-surgical menorrhagia, in hemorrhage from the kidneys or from typhoid and other intestinal ulcerations, as a prophylactic measure when the gall bladder is to be drained after a jaundice, in purpura hemorrhagica, in hemorrhages from the lungs, and in the essential anemias in which hemorrhage is a prominent symptom, thyroid is superior to the other remedies in vogue. In some of the acute infections as acute follicular tonsillitis, acute rheumatism and allied conditions, its use may be very striking, and chronic arthritic conditions are sometimes benefited. (6) In promoting bony union, in fractures and in achondroplasia thyroid is of assistance. (7) Certain mental states, especially those which accompany natural or prematurely induced menopause can sometimes be helped by thyroid which compensates to a certain extent for lack of ovarian secretion. (8) In preg-

nancy thyroid is very valuable when for some very strong reason a case has to be carried along for some weeks notwithstanding the fact that such grave warnings as albuminuria, increased blood pressure, headaches or edema, are present. In eclampsia he has used it with success when other means failed. The thyroid gland may be gently stimulated by the administration of iodine. Many of the unexplained good effects observed from the use of iodine are due to stimulation of thyroid secretion.

**Antitoxin:** S. E. Earp, in the *Indianapolis Medical Journal* for March believes that there are many who will agree that diphtheria antitoxin should not be used as a prophylactic with the same freedom as in a case of diphtheria. The conditions are not the same, and to give a healthy child a powerful remedy when there is no evidence of disease, to say the least, makes a practitioner think twice before acting. This does not imply that preventive medicine should not always be given important consideration nor does it mean that diphtheria antitoxin is the best remedial agent in diphtheria, but it does mean that much caution should be observed. If the children of a household, where a case of diphtheria exists, are carefully watched by a physician and upon the first indication or suspicion of diphtheria the antitoxin is given, this would seem to be a reasonable course. It is often used indiscriminately with no apparent thought of danger, and he believes such a course to be wrong. E. W. Goodall in the *British Medical Journal* sounds a warning, and the *New York Medical Journal* says "Goodall is averse to using diphtheria antitoxin as a prophylactic." Not only might it happen, he remarks, that the person treated was peculiarly susceptible to the action of the serum, even if he was not known to be asthmatic, but supposing that he was not naturally susceptible, it would not be unlikely that by the injection he would be rendered artificially so, in which case, if subsequently it was found necessary to use antitoxins remedially—a by no means unlikely event in these days of sera and vaccines—he would run the risk of undergoing a very unpleasant illness. There are some instances of outbreaks of diphtheria in institutions for the care of children, in which the use of antitoxin as a prophylactic may be justified. But he is strongly of the opinion that the indiscriminate use of serum as a prophylactic is not only unnecessary but unjustifiable. In cases of undoubted diphtheria there is seldom necessity for hesitation as to the use of antitoxin. If we are called upon to treat an asthmatic who has been unfortunate enough to contract diphtheria, we will have to choose between two evils. If the attack of diphtheria is severe, and especially if the larynx is involved, we are compelled to risk his supersensitiveness. For happily it is not every asthmatic who is supersensitive.

**Bronchopneumonia:** In the March number of *Merck's Archives*, John B. Huber considers medication in bronchopneumonia. In children at any age it is imperative that we know precisely how and why we use a drug; especially in pneumonia do we guard against depletion by medication. We seek in our therapy to relieve pain, to remove obstruction to respiration, to minimize cough, to relieve nervous symptoms and to help sustain the strength by inducing light (not profound) sleep which later is nature's most beneficial therapeutic agency. The adult and the aged patient must be put to bed at once, the semirecumbent position is to be taken, the shoulders well propped with pillows, to ease respiration. Hot water bottles, or flannel covering to the feet are applied, the extremities must be warm. Dry cups or an ice poultice or sinapisms or spirits of turpentine sprinkled upon cloths wrung out of hot water are applied to the chest. No depleting remedies but elimination by bowels, kidneys and skin is looked after. No heroic doses of antipyretics are administered. In and against hypostatic congestion and edema oxygen inhalations are given before the blood is loaded with, and the brain poisoned by, carbon dioxide.



## Department of Pharmacy.

Conducted by H. V. ARNY, Ph. G., Ph. D.

**Ideal Ointment** According to Fordyce (*N. Y. Medical Journal*,  
**Base:** through *Druggists Circular*, 55, 132) a mixture of  
one part of wool fat and three parts of cold cream constitutes what he  
considers an ideal base.

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**Incompatible** The prescription calling for one ounce syrup of chloral;  
**Prescription:** one dram of heavy magnesia; one dram of wine of ipe-  
cac; one dram of tincture of belladonna; and water to make six ounces,  
gave trouble to the dispenser, first because of formation of chloroform  
from the chloral by action of the alkaline magnesia, and secondly because  
the alkali precipitates the alkaloids of ipecac and of belladonna; these  
dissolving in the separated chloroform. So reports Donald McEwan  
(*American Druggist*, 58, 145).

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**Pharmacology** Wild and Grier (*Chemist and Druggist*, through  
**of Sulphur:** *Merck's Report*, 20, 61) interestingly discuss this  
element and its compounds. While not affected by pure water, it pro-  
duces hydrogen sulphid in aqueous media containing organic matter, be-  
ing thus converted in the alimentary canal. Sulphur mixed with minced  
beef keeps it for months; the element itself gradually disappearing as  
hydrogen sulphid.

The authors find sulphur a better intestinal disinfectant than salol  
or bismuth salicylate and a better alterative than calcium sulphid.

The paper closes with statement of the dietetic value of those vege-  
tables containing organic sulphur, such as onions, beets, radishes, cresses,  
turnips and cabbages.

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**Biological** This is becoming the most discussed of all prob-  
**Standardization:** lems connected with pharmacopoeial revision and  
the latest paper on the subject is that of Dr. Worth Hall (*American  
Journal of Pharmacy*, 83, 97.)

Beginning with the citation of two cases coming to his notice, one  
where a patient suffering from chronic heart disease received on re-  
filled prescription a tincture of strophanthus having three times the  
physiological activity as the tincture originally dispensed; the other  
where a digitalis preparation commercially exploited proved to be a  
heart depressant and not a tonic, the author emphasizes the need of  
some kind of standardization even though it is not absolutely accurate.  
He has therefore studied the problem experimentally upon the four meth-  
ods suggested for the digitalis group by Houghton, Reed and Vander-  
kleed, Hatcher, and Famulener and Lyons respectively, finding the latter  
method preferable. The first three methods—based on minimum lethal  
dose—is not satisfactory, since (quoting the author's words) "any bi-  
ological assay method for any drug should take into account that action  
of the drug upon which its chief therapeutic usefulness rests and that  
in so far as practical difficulties do not interfere, this action should be  
made the basis of the biological method used in its assay."

The Famulener and Lyons' assay, in which permanent systole of the  
frog's ventricle at the end of exactly one hour is taken as the end  
reaction, has the advantage of the other methods of producing a definite  
and distinctive result. Lethal dose might mean death by other processes  
than that manifested by the drug itself.

Trying the method of Famulener and Lyons on "unknowns", that is,  
on solutions of chemicals of the digitalis group (strophanthin conval-  
lamarin, digitoxin, French digitalin, digitalein and German digitalin)  
prepared of definite strength by another operator, but which strength

was not known to the author, the percentage of error in the deductions of the author ranged from zero to 10.6%.

Incidentally, the activity of the several chemicals is in the order cited above: German digitalin having one-eighth the activity of amorphous strophanthin.

As to ergot, the author thinks it will be a long time before a reliable chemical assay will be devised, because of the complex character and varying effect of its several active ingredients. Investigation of the three methods of biological assay—blueing of the cock's comb, estimation of rise of blood pressure, and contraction of the uterus both in the living animal and isolated—showed that, contrary to the present idea, the cock's comb test was fairly accurate, agreeing to a surprising extent with the uterus assay. The blood pressure assays, while generally giving concordant results among themselves, showed wide variations from the results by other methods.

**Toxicity of Arsenic Compounds:** Launoy (*Apotheke Zeitung*, through *Merck's Report*, 20, 78) has determined the relative toxicity of the compounds mentioned below, given intraperitoneally.

The figures show that guinea pigs can stand as maximum per kilo of body weights 6 to 12 milligrams of arsenic in the form of sodium arsenate.

8.75	mg.	arsenic	as	sodium	sulpharsenate.
9.91	"	"	"	"	sulphoxyarsenate.
25.4	"	"	"	"	methylarsenate.
25.6	"	"	"	"	sulphmethylarsenate.
46.1	"	"	"	"	acetylatoxyl.
41.8	"	"	"	"	atoxyl.
22.1	"	"	"	"	sulphatoxyl.
8.3	"	"	"	"	colloidal arsenic.
9.1	"	"	"	"	sodium cacodylate.

**Surgeon's Grit Soap:** There is now a demand among surgeons for a soap containing pumice and as the commercial varieties contain much free alkali thus roughening the hands, J. C. Thum (*American Journal of Pharmacy*, 83, 111) devised the following recipe, which he highly recommends.

Heat 500 c.c. cottonseed oil and 500 grams stearic acid till a clear fluid results, to this add 150 grams sodium hydroxid dissolved in 1000 c.c. water and heat for 15 minutes with constant stirring. Then add 150 c.c. alcohol and stir for a few minutes when saponification will be effected. Then add 1000 c.c. of 20% sodium chlorid solution, separate the hardened soapy mass from the alkaline fluid, wash mass two or three times with distilled water, then melt, incorporate 300 grams powdered pumice and while mixture is still hot, pour into suitable moulds.

## Academy of Medicine of Cleveland.

### ACADEMY MEETING.

The eighty-first regular meeting was held at the Cleveland Medical Library, Friday, February 17, 1911, the President, W. B. Laffer in the chair.

The program was as follows:

Notes on Some Common Fractures and the Results of Treatment, F. J. Cotton, Boston, Mass. (To appear in full in the Journal.)

F. E. Bunts, in the discussion, said that in the last five or six years our ideas as to the treatment of fractures had materially changed—due to the use of the x-ray. He wished to ask the speaker whether he thought ischemic paralysis was due to tight splints or to faulty position of the splints and how long it took to produce it. Lane, of London,



believed that the periosteum was of no value in the formation of callus. What were the speaker's ideas on the question? In regard to delayed union in fractures what did he think of the use of Bier's passive hyperemia treatment. In the last few years fractures of the carpal bones had attracted the attention of many, especially since the x-ray had shown that many of the so-called sprains of the wrist were really fractures: these could occur not only from crushing injuries but also from the same trauma as a Colles' fracture. He wished to ask if the speaker believed in operating and removing fragments in such cases when they were especially difficult to reduce.

J. F. Hobson agreed with the speaker that after proper and complete reduction of a Colles' fracture there was little tendency for the displacement to recur. Ischemic paralysis was usually due to too much pressure by the splints or bandages but he had had one case in which neither splints nor bandages were used. Sometimes it was due to direct injury to the brachial plexus and then it was a question what should be done. In Pott's fracture there were supposed to be three breaks, at the lower end of fibula, of the internal malleolus and a small chip broken off the outer edge of the tibia: the speaker had not mentioned the last and he wished to ask as to its relative frequency. He felt that in fracture of the fibula with marked displacement resort should be had more often to operation, as the recovery was more rapid and satisfactory. After a fracture the functional result was, after all, the main consideration and the readjustment of the normal relations of the part of secondary importance. Radiographs sometimes led to unfortunate results in damage suits after fractures: a misleading appearance of displacement might influence a jury even when a perfect functional result had been obtained.

G. W. Crile said that a renewed interest had of late been shown in the study of bones and joints. At one time it was the most important field in surgery, then, with the invasion of the abdominal cavity, and later the brain, by the surgeon, it had been neglected and only recently had its importance been sufficiently recognized.

G. B. Follansbee said he had found by practical experience that in fractures close to joints too long immobilization was harmful and that early passive motion was indicated. He wished to ask whether it was always possible to reduce a dislocated ulna in a Colles' fracture and to retain it in place as he had had great difficulty in doing so. Did it make much difference if the styloid remained displaced in this fracture?

W. O. Osborn said that he had two patients who had had Colles' fractures years ago, and in whom there was a preternatural mobility of the ulna with some trifling pain and weakness in the joint. He wished to know whether there was any way of remedying this.

F. J. Cotton, concluding the discussion, said that it was sometimes impossible to differentiate a nerve paralysis from an ischemic paralysis. He had seen very few cases of true ischemic paralysis. As to the length of time necessary for its onset, he had seen it occur in one case in less than 24 hours, although the bandages had been carefully applied and were not too tight: he forcibly overstretched the muscles, which were matted together in a cord-like mass, rupturing the fibers, and securing marked improvement. Another case yielded to dissection of the muscles from the callus around the fracture. Most of the cases were really due to nerve pressure and then dissection of the nerves from the scar tissue was indicated: usually there would be no improvement from rupture of the muscles. In spite of Lane's assertion, he believed in the value of the periosteum in forming callus. The bone, however, was not killed by denuding it of periosteum, as was formerly taught, and if necessary he did not hesitate to strip it off. The periosteum was certainly closely associated with the formation of callus and ossification progressed from it. Very little was known of the influence of constitutional

disease upon delayed union: with the exception of diabetes and malignancy they had little effect. It was usually due not to poor general nutrition but local conditions, e.g., interposition of fragments of tissue or contact of periosteum with periosteum. In regard to Bier's hyperemic treatment, the author of it had now abandoned its use in cases of delayed union. In carpal fractures the scaphoid was most frequently affected, being often cracked without any displacement and then union usually occurred with no thickening or impaired motion. If motion were limited, due to displacement of the fragments, and a crippled wrist ensued, a good result was usually secured after removing one of the pieces. If there were a displacement of one row of the carpus upon the other, sometimes one row of bones had to be removed. The chipping off of a fragment from the tibia in Pott's fracture, while fairly frequent, was not necessarily present. It was not always possible to reduce and hold the head of the ulna in Colles' fracture; this was often due to lack of ligamentous repair. In long standing subluxation of the ulna after a Colles' fracture, if very marked, the ligaments could be shortened by operation with good results. The fracture of the styloid was very frequent in Colles' fracture but was of practically no consequence. He did not believe in the operative treatment of fractures if good results could be secured in other ways. There should be no unnecessary operating but one should not avoid the responsibility of operating if it were necessary. In shoulder fractures he was rather radical and believed in operation early before the callus became too firm.

#### OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION.

The fifty-first regular meeting was held at the Cleveland Medical Library Friday, February 24, 1911, S. H. Large in the chair.

S. H. Monson presented a case of persistent hyaloid artery in both eyes in a boy 10 years old. There was marked nystagmus and a gray mass could be made out projecting into the vitreous, one end being attached to the retina the other end moving freely in the vitreous. Details of the fundus could not be made out. Vision was 3/60 in either eye.

He also presented a case of a child six years of age with congenital cataract in each eye completely filling the pupillary area and reducing the vision to hand movements.

M. Metzenbaum demonstrated some new instruments.

The program was as follows:

1. Report of a Case of Tumor of the Nasopharynx with Specimen. I. A. Tripp. (To appear in full in the Journal).
2. Some Experience with Ethmoidal Infections. W. J. Abbott. (To appear in full in the Journal).
3. Presentation of a Case of Traumatic Cataract due to Concussion. Edward Lauder. (To appear in full in the Journal).
4. Presentation of a Case of Tumor of Orbit. W. E. Bruner.

This tumor was probably a sarcoma. The patient, aged 58, first came to the dispensary January 15, 1911, on account of poor vision and had noticed a blurring of the eyes for about the last two months. The history was otherwise negative. With correcting lenses vision in each eye was 6/6. Ophthalmoscopic examination proved negative. The right eyeball was prominent and was pushed downward and slightly outward. There was limitation of movement upward. A mass could be felt in the orbit upward and inward. Examination of the sinuses showed evidences of chronic ethmoiditis and the ethmoid cells were opened. For a time the patient thought there was some improvement, but the eye presented about the same appearance as when first seen. The Wassermann test was negative.



## CLINICAL AND PATHOLOGICAL SECTION.

The seventy-sixth regular meeting of this Section was held at the Cleveland Medical Library, Friday, March 3, 1911, R. K. Updegraff in the chair.

W. O. Osborn presented a woman who had red, sore and infiltrated lumps on the shins, thighs and buttocks. She gave a history of syphilis of five years' standing. Shortly after her original infection she had been treated in a hospital for rheumatism, having indefinite joint pains and fever. Six months later she was started on mercury by mouth and this treatment had been continued until the present time, notwithstanding which she had at times had recurrences of the lesions which resembled erythema nodosum on the shins, thighs and buttocks. These would clear up in two or three weeks, when potassium iodid was taken. The case was interesting from the standpoint of diagnosis. Were these lumps a manifestation of syphilis or was this a case of erythema nodosum in a syphilitic patient?

P. A. Jacobs presented a man with secondary syphilis showing a typical maculopapular eruption. The infection dated back six weeks. Ten days ago the Wassermann reaction was negative but a week later was positive.

John Phillips reported a case of foreign body in the air passages of a child four years of age. A toy metal pipe, the bowl of which was perforated on the sides so that air could pass through, had been aspirated into the air passages unknown to the parents. The child had a choking spell, became very cyanotic, but as he had previously had suffocative attacks, due to an enlarged thymus, his mother thought that his choking and difficult breathing were simply a repetition of these and so did not call a doctor until six days later. At that time the boy's breathing was labored and there was a very marked inspiratory stridor with very hoarse cough. This kept up, the patient growing increasingly weaker, until five weeks later in a severe coughing spell the pipe was expelled. One very interesting feature of the case was the development of a very marked pigeon breast during the time the foreign body was in the air passages.

The program was as follows:

1. Demonstration of Heidingsfeld's Apparatus for the Intravenous Administration of Salvarsan, M. Metzenbaum.

2. The Wassermann Reaction: A Preliminary Report Based Upon a Study of Six Hundred Cases, R. Dexter and C. L. Cummer. (Appearing in full on page 282).

3. The Clinical Value of the Wassermann Reaction, with Observations on a Series of Four Hundred and Fifty Cases, Willard C. Stoner. (Appearing in full on page 297).

H. J. Gerstenberger, in the discussion of these papers, referred to the experience of a German physician who found that in sending the same blood to different laboratories he got conflicting reports. He himself had had similar experiences. He therefore claimed that for a Wassermann reaction to be of any value, the technic must be very accurate. Wassermann himself said that the personal equation had much to do with the results.

C. F. Hoover stated that one reason why we did not understand all about this reaction was because we did not understand the process of hemolysis. He thought that ultimately the value of the Wassermann would prove about the same as that of the Widal. He did not think it would prove of much value as a guide to treatment and he mentioned six cases of cerebrospinal syphilis seen at Lakeside Hospital, in which five gave a negative reaction: these all showed marked increase in the number of lymphocytes in the cerebrospinal fluid. He believed that

Fournier's rule of three years of mercury and then a month of mercury every year with an occasional course of potassium iodid, as long as a man lived, would have to be followed.

G. N. Stewart commented on the fact that although we did not know how mercury acted, yet we used it with good results. The Wassermann reaction might also prove of great value and some time we would know all about the process itself, even if we did not at present.

C. H. Clark thought that a cytological examination of the cerebrospinal fluid with a Noguchi test was of greater value in the diagnosis of cerebrospinal syphilis than the Wassermann reaction.

P. A. Jacobs said that since the reaction was a quantitative one, a slight slip in technic might alter the results. He also asked how many negative findings must be obtained before the patient could be considered cured of lues.

H. B. Ormsby asked what effect sodium cacodylate had on the reaction.

M. J. Lichty said that the Wassermann reaction had been of great service to him and mentioned some cases by way of illustration. He said that the danger in its usage lay in the hands of those who were overenthusiastic.

L. W. Ladd said that in the cases in which the Wassermann reaction had been done for him he had found it very reliable indeed. He said that the true test of its value would be the frequency with which positive reactions were obtained in patients free from syphilis.

W. G. Stern asked whether any work had been done with this reaction, using the blood of animals.

R. Dexter said that in reply to W. G. Stern's question that the reaction had been tried on apes which had been infected with *Treponema pallidum* and positive results had been obtained.

C. L. Cummer called attention to the statistics which had been submitted and made the point that the absence of positive reactions in non-specific cases was proof of the value of the test: the final judgment upon the use of the reaction in controlling treatment could not be determined until years had elapsed. Although it was too soon to say when a patient could be considered definitely cured, the test should have been negative for at least a year.

W. C. Stoner said that the last word on the Wassermann reaction could not yet be said. The test must be performed so that a positive reaction would speak for syphilis, because a negative reaction could not always be depended upon. In the absence of clinical findings a negative reaction strengthened the belief that the patient was free from the disease, whereas a positive reaction meant syphilis, provided a few non-syphilitic conditions, e.g., yaws, leprosy, and sleeping sickness, that gave the reaction could be eliminated. Citron regarded the positive reaction as a symptom, probably the most important in the disease, and so long as it was present the disease was active. The fact that we did not understand the phenomenon of hemolysis need not reflect on the reliability or value of the test for we were obliged to accept many phenomena in medicine that we were unable to understand. The future value of the test in Cleveland, or anywhere, would depend largely upon the manner in which it was performed.

#### 4. Demonstration of *Treponema pallidum*, O. T. Schultz.

Stained preparations of the organisms in smears and in tissue were shown and the importance of the fact that the organism could be found in the primary lesion was emphasized: the indication then was excision of the lesion, to destroy the breeding place of the treponemata. In lesions other than primary the finding of the organism was difficult and it was also difficult in mucous patches of the mouth. In congenital syphilis treponemata were difficult to find and also in late secondary and tertiary lesions as soon as necrosis appeared.



## COUNCIL MEETING.

The Council of the Academy met Monday, March 6, 1911.

It was voted that the Secretary give M. Schott a letter to the State Board of Texas.

The report of the Committee to Investigate the Advisability of Extending the Scope of the City Laboratory was read and accepted, but a motion to adopt the recommendations in it was lost.

The Legislative Committee was instructed to use their influence to have the Homeopathic candidate from Milan, Ohio, appointed to the Ohio State Board of Medical Registration and Examination.

It was voted that the Legislative Committee use their influence to defeat the amendment to the Medical Practice Act.

It was voted that the Chairman of the Legislative Committee be instructed to use his best endeavors to establish professional schools in the Ohio State University.

The Secretary was instructed to inquire from the State Board of Health why certain of its employees had been discharged.

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### The Cleveland Medical Library Association.

At a recent meeting of the Council of the Library Association it was voted to send out to members, at intervals during the year, a Bulletin containing matters of interest. The following is Bulletin No. 1.

#### BOOK REGULATIONS:

The following amendment to the rules with regard to the use of books was recently passed by the the Council.

Section No. 6 was amended to read "Books newly acquired may be loaned to members, for one week only, without the privilege of renewal. Not more than one new book to be withdrawn at a time. This is to apply only during the first six months after having been placed in the Library.

#### RECENT NEW BOOKS.

Mackenzie—Diseases of the Heart.  
 Mackenzie—Symptoms and their Interpretation.  
 Ball—Diseases of the Rectum.  
 Whitelocke—Sprains and Allied Injuries of Joints.  
 Handley—Cancer of the Breast.  
 Ehrlich and Bolduan—Studies on Immunity.  
 Ehrlich-Hata—Chemotherapie der Spirilloesen.  
 Lane—Operative Treatment of Fractures.  
 Lane—Cleft Palate and Hare Lip.  
 Keibel and Moll—Embryology.  
 Kossmaul—Störungen der Sprache.  
 Kraepelin—Psychiatrie.  
 Krehl—Pathologische Physiologie.  
 Martindale and Westcott—Salvarsan (606).  
 McFarland—Biology.  
 Mumford—Practice of Surgery.  
 Ashhurst—Fractures of the Elbow.  
 Allbutt and Rolleston—Practice of Medicine.  
 Williamson—Diseases of the Spinal Cord.  
 Erben—Handbuch Sachverständigen-Tätigkeit (Vergiftungen Klinischer Theil).

## NEW JOURNALS.

American Journal Dis. of Children.	La Presse Medicale
The Child (Child Welfare).	Annales L'Oculistique.
Journal of Rhinology, etc.	Le Bulletin Medicale.
British Journal of Dermatology.	Graefe's Archiv. f. Ophthalmologie.
The Clinical Journal (London).	Archiv. f. Psychiat. u. Nervenkrank.
Jour. Roy. Army Med. Corps.	Internat. Archiv. Schulhygiene.
Annales de Dermatol. et de Syph.	Archiv. f. Ohrenheilkunde.
Archives Internat. Neurologie.	Deutsche Zeits, f. Nervenheilkunde.
	Zeitschrift f. Kinderheilkunde.

## TREASURER'S REPORT.

The Treasurer reported a balance on hand at the time of the annual meeting of \$963.95, most of which represented special contributions for the new book stacks. The receipts up to April 12, 1911, amounted to \$2098.23, the chief items being the annual dues, \$1760.00.

The expenditures were \$1824.44, the largest items being the new book stacks \$682.82, librarian's salary of \$560.00 and journals \$192.00.

In the New Book Fund a gift of \$500.00 was received from Dr. D. P. Allen, and the amount expended for new books was \$207.62.

The Association owns its property free from any debt, and has \$18,000 invested in its permanent endowment fund.

## MUSEUM.

The Historical Committee will be pleased to receive contributions of instruments which by reason of age or historical association are of interest to the profession. A start has been made, cases have been purchased for the display and safe keeping of those in the museum, and they are being classified and marked with the name of the donor and the name and use of the instrument, and it is hoped to make this not the least interesting part of the library.

## PRIZES.

Attention is called to the prizes offered for literary work. Competition is open to any member of the Cleveland Medical Library Association who has graduated within the past ten years. Further details may be found in the Cleveland Medical Journal for February, page 170; or may be had by calling at the library.

## ADVANTAGES OF MEMBERSHIP—ONE OF THEM.

Any member who may desire the literature on any subject of medicine and surgery may have the same looked up and placed at his disposal by notifying the Librarian.

Our membership now numbers about 230.

## Ohio State Medical Association Meeting.

## SCIENTIFIC EXHIBITS:

For the scientific exhibits space has been reserved in the Chamber of Commerce Auditorium, from which there is easy access to the meeting place in the Brotherhood of Locomotive Engineers Auditorium. The registration and information booths will be in the Chamber of Commerce Auditorium and the smoker will also be held here. It is hoped that the scientific exhibits may be both interesting and valuable and in order that they may be so the cooperation of those who have anything of interest to show is asked.



## PATHOLOGICAL EXHIBIT:

Representative and unusual pathological specimens are sought. For the labelling of such the special cards, which may be obtained on application, should be used. Equally valuable are photographs of clinical cases and of gross pathological specimens, drawings, microphotographs, unusual clinical charts, etc. In regard to such exhibits address Dr. O. T. Schultz, Western Reserve Medical College, Cleveland.

## X-RAY EXHIBIT:

For the x-ray exhibit it is requested that members communicate with the committee at as early a date as possible, stating the nature of the exhibit they wish to make and the number and size of plates. Only 8 x 10, 11 x 14 and 14 x 17 plates can be accepted. Typical plates of pathological conditions of the thorax and of the various diseases of bones and joints are especially desired. Kindly address communications to Dr. Geo. F. Thomas, 533 Osborn Building, Cleveland.

The essentials in a clinical history should be sent with each specimen.

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Reviews.

The Principles of Pathology. By J. George Adami, M. A., M. D., LL. D., F. R. S., and Albert G. Nicholls, M. A., M. D., D. Sc., F. R. S. (Can.). Volume II, Systemic Pathology. Second edition, revised and enlarged with 301 engravings and 15 plates. Lea & Febiger, Philadelphia and New York.

It is only a little more than a year ago that we had the pleasure of reviewing this volume in its first edition. Could we, every few months, devote to it the space usually allotted to a book review, we might hope to do the volume justice by the time the next edition appears.

Advantage has been taken of the revision to alter somewhat and to improve those portions of the work dealing with embryology and structure and with the normal and abnormal physiology of the organ systems. Pathological anatomy is gross morbid anatomy and pathological histology deals with the finer structural changes. Both are old subdivisions of pathology and neither offers much room for the statement of new facts or for individuality in the treatment of such facts as are stated. In the interpretation of events leading to the formation of lesions and in the discussion of the effects that lesions may have upon the functions of organs there is a chance for individuality of viewpoint and of expression. It is the treatment which this portion of the subject matter of pathology receives that makes Adami and Nicholl's book unique and especially valuable.

Which is the more important purpose of a book review? Is it to point out to the student and practitioner the particular merits that any given volume may have? Or is it to indicate to the publisher and author the minor faults that the book may show? If the former, we can perform our duty, in the case of the present volume, most easily by recommending it to all who wish the best book upon pathology which has thus far appeared. If the latter, we fear that our former effort has been futile and cannot hope that any weighty words we might write at this time will have any more tangible results. Most specific botanical names are still printed in ordinary type, whereas zoological terms are italicized, and there is still the same lack of uniformity which writes in one place *B. tuberculosis*, in another *Oidium albicans*, still elsewhere *Pentastomum denticulatum* and three lines further on *Paragonimus Westermanni*. Amoebic dysentery is still "due to the *Amoeba coli* or *Amoeba dysenteriae*" (italics forgotten), whereas a zoological purist would claim that the first is an improper name for the harmless intestinal amoeba and the second is likewise improper but might perhaps mean the pathogenic species. The very meager chapter upon the thyroid still

maintains the usual confusion, whereas the pathology and especially the pathological physiology have been amplified and simplified, by the work of the past few years, to a very remarkable degree. That our former effort has not led to a correction of these faults causes us no resentment—we are more than ever convinced that in his two volumes Adami has given us the best treatise upon pathology which has ever been written.

O. T. S.

**Inebriety.** A Clinical Treatise on the Etiology, Symptomatology, Neurosis, Psychosis and Treatment and the Medicolegal Relations. By T. D. Crothers, M. D., Superintendent Walnut Lodge Hospital, Hartford, Conn. Cloth. Price \$3.00, pp. 365. Cincinnati. Harvey Publishing Co. 1911.

The author of this highly instructive and scientific volume is undoubtedly the foremost student of the subject of inebriety in America today. His utterances before the leading medical and sociological bodies of this country and of Europe have commanded the utmost respect and have been widely quoted.

His book embodies the conclusions he has reached after 35 years' experience with alcoholism in its manifold aspects. He has long been recognized as a painstaking, careful observer. The work is admirably written and reads like fiction. His chapters on the early history of the drink problem, its etiology, pathology, prognosis, treatment and the medicolegal phases of alcoholism are indeed well presented.

Not every one will agree to all of his conclusions. A point of criticism for example is the author's reference to "paresis" as an alcoholic condition. The reviewer is under the impression that the various theories of the causes of general paresis have been exploded and that we have returned to the old dictum, no syphilis, no paresis. It is apparent also that the author in his overenthusiasm and lifelong association with this single subject has perhaps attributed a little more to the effect of alcohol than conservative thinkers will admit. This, however, can readily be pardoned as it is much better to overestimate the dangers of the abuse of alcohol, than to depreciate its importance.

A copy of this book should be in the hands of every physician, social worker, clergymen, etc., and it should be carefully read by every attorney and jurist.

H. H. D.

**Handbook of Treatment for Diseases of the Eye (Ophthalmic Therapeutics).** By Dr. Curt Adam, Assistant Surgeon in the University Clinic for Diseases of the Eye, Berlin. With a preface by Prof. von Michel, Berlin. Translated from the second German edition (1910) by William George Sym, M. D., F. R. C. S. Ed. and E. M. Lithgono, M. B., F. R. C. S. Ed. With 36 illustrations. Rebman Co., New York. Price \$2.50.

This little book is designed rather for the use of the general practitioner than the specialist. It presumes a certain amount of knowledge of the diagnosis of eye conditions and pays particular attention to the therapeutics. It presents in a handy and concise form facts that afford the physician assistance in the selection of methods of treatment.

L. W.

**Manual of Cystoscopy.** By J. Bentley Squier, M. D., Professor of Genito-Urinary Surgery, New York Post-Graduate Medical School and Hospital and Henry G. Bugbee, M. D., Instructor in Genito-Urinary Surgery, New York Post Graduate Medical School and Hospital. With 26 original plates, 18 of which are colored. Octavo, flexible leather, \$3.00 net. Paul B. Hoeber, Publisher, New York, 1911.

This is an excellent little book, with good illustrations. The authors



are most conservative in their statements as to what can be accomplished by cystoscopy. They insist that thorough training and experience in the use of the instrument is a prerequisite to its successful use and they rightly add that those who underestimate its value probably lack a mastery of the necessary technic. An indiscriminate use of the cystoscope in inexperienced hands has brought a certain amount of discredit to the instrument in the past. By carefully following the methods and details of technic described in this book many errors may be avoided in the future.

H. L. S.

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**The Treatment of Disease. A Manual of Practical Medicine.** By Reynold Webb Wilcox, M. A., M. D., LL. D., Professor of Medicine (Retired) at the New York Post-Graduate Medical School and Hospital; etc. Third edition, thoroughly revised and enlarged. P. Blakiston's Son & Co., Philadelphia, Pa. Price, \$7.50 net.

The student of medicine today receives a thorough training in pathology and physical diagnosis. This is of course absolutely essential, but he will achieve his greatest success and win his most enduring reputation if he has a broad and thorough knowledge of therapeutics. It is gratifying indeed to notice that a much keener interest is now taken in this branch of medical study by the medical profession than ever before. To this fact alone is probably due the publication of numerous books on treatment. The present book is now in its third edition and is based on 25 years' experience in practice and in teaching. Much new material has been added since the second edition. The reviewer can scarcely see the advisability of including in a textbook on treatment, a summary of the etiology, pathology and symptoms of the different diseases. This book can be recommended as an up-to-date and useful work.

J. P.

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**A Manual of Physical Diagnosis.** By Brefney Rolph O'Reilly, M. D., C. M. (F. T. M. C. Toronto; M. R. C. S. Eng.; L. R. C. P. Lond.) With six plates and 49 other illustrations. Price, \$2.00 net. P. Blakiston's Son & Co., Philadelphia, Pa.

This is a small volume of 360 pages whose author sets for himself the task of outlining, in this limited space, physical diagnosis, including a description of the methods of physical examination proper as well as those of the laboratory examination of urine, blood, sputum, etc. There is no obvious demand for additional works of this nature, for the library shelves are already crowded with really excellent treatises. Nothing original is presented, and the manner of presentation has nothing to commend it except the fact that it is the one which practically all writers have adopted. We are at a loss to understand why the author should have considered it necessary or desirable to inflict the profession with his epitome except that it may be that he desires to present for his own classes a text after his own heart.

We are surprised to learn that tracheal breathing is of *low* pitch (p. 102), and that the respiratory murmur over the *left* apex is usually slightly more harsh and intense than over its fellow (p. 103). These statements are hardly in accord either with everyday observation or with the ordinary authorities.

In that section which deals with laboratory methods we find plates illustrating the appearance of the blood in pernicious anemia and the leukemias, but the text affords no description. Why clutter the book with borrowed illustrations which illustrate nothing that the author has to say?

C. L. C.

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**Atlas of Microscopic Diagnosis in Gynecology.** With preface and explanatory text by Dr. Rudolf Jolly, Priv. Doc., Chief Physician of the Gynecologic Clinic, University of Berlin. Only authorized English translation by P. W. Shedd, M. D., New York. With 52 lithographs

in color and two textual figures. Rebman, Limited, London. Price cloth \$5.50.

This work deals, practically entirely, with the pathological changes found in the endometrium. The title might, with advantage, be modified to indicate that this field alone is covered, since one would be likely to infer that ovarian and tubal conditions, etc., were also considered. It is profusely illustrated with really beautiful and instructive lithographs in colors. The explanation of the figures is very satisfactory but even if the book is a translation the language might be simpler. The following paragraph (p. 15), which is a fair sample of the whole text, speaks for itself:

"For cognition of alterations in tissue, the simple nucleus-staining dyes are entirely adequate. They afford comprehensive views and accentuate the essential structural characteristics, and it is only when emphasis is desired concerning peculiarly subtle attributes that the complex stains are preferable."

In reading that the villi "sway in the pulsing currents and passionate vortices of maternal blood (p. 96), one is apt to be so lost in admiration of the writer's style as to forget his real purpose—describing the appearances of a section of tissue.

The author has retained the classification of Carl Ruge and uses the word "endometritis" although no inflammatory cells may be present: thus, in cases of simple hypertrophy or hyperplasia of the glands the term "endometritis glandularis" is used. The typographical work is excellent and the whole appearance of the book is most creditable. Altogether it is the most satisfactory book dealing with this special subject that we have seen.

W. H. W.

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The Treatment of Syphilis by the Ehrlich-Hata Remedy (Dioxydiamid-oarsenobenzol). A Compilation of the Published Observations by Dr. Johannes Bresler, Chief Physician to the Provincial Medical Establishment at Lüben, Silesia. Second edition, much enlarged with the portraits of Ehrlich and Schaudinn. Translated by M. D. Eder with an abstract of the most recent papers. Rebman Co., New York.

The book is an account of the reported results with Ehrlich's "Salvarsan," up to the latter part of the year 1910. These results are served up in abstract. The ideas of men who have used the drug are stated, more space being given to the enthusiastic, than to the unenthusiastic. So much of the early work with Salvarsan was written in such a glowing manner, that, of necessity, conservatism finds little place in this book. It is about as interesting as abstracts usually are, and if taken at face value, would lead the reader to believe that one injection of Salvarsan was already a proved cure for syphilis. For this reason the book might be dangerous in the hands of the hyperenthusiastic or of the hypocritical. The paper is cheap and the printing poor. Many patent medicine firms send out gratis, much better prepared and more attractive manuals.

R. D.

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Emanuel Swedenborg's Investigations in Natural Science and the Basis for his Statements Concerning the Functions of the Brain. By Martin Ramström. University of Upsala, 1910.

The versatility and manysidedness of Swedenborg have in recent years attracted more and more attention. Perhaps it is not generally known that besides his writings on religious subjects and spiritualism, he made important contributions and anticipated many discoveries in various departments of science. Thus he was a profound mathematician and an excellent practical engineer, a student of geology, mineralogy,



chemistry, astronomy and cosmology. He anticipated Laplace in the conception of the nebular hypothesis.

Not only did he investigate inorganic nature and speculate extensively in this immense domain, but he also pursued anatomical physiological and embryological studies. In his *Oeconomia Regni Animalis*, published in Amsterdam in 1740-41, in two large volumes, he confutes the then prevalent "pre-formation theory" and replaces it by a theory which was later independently conceived by Caspar Friederich Wolff (who was probably the greatest embryologist that ever lived), and has come to be known as the theory of "Epigenesis." In Swedenborg's time, the view of Hippocrates that the brain was a gland, still held sway. As the result of an exhaustive investigation of medical literature and a study of the results of experiments and a consideration of clinical and pathological evidence, Swedenborg arrived at the conclusion that the cortex cerebri is the seat of psychical functions, and that the motor centers are located here.

Ramström's account of some of the activities and the mode of investigation employed by one of the greatest geniuses the world has ever known, is full of interest.

C. A. H.

### Acknowledgments.

A Textbook of Surgical Anatomy. By William Francis Campbell, M. D. Second edition revised. Octavo of 675 pages, with 319 original illustrations. Price, cloth, \$5.00 net; half morocco, \$6.50 net. W. B. Saunders Co., Philadelphia and London.

State Board Questions and Answers. By R. Max Goepf, M. D. Second edition revised. Octavo volume of 715 pages. Price, cloth, \$4.00; half morocco, \$5.50 net. W. B. Saunders Co., Philadelphia and London.

Diagnostic and Therapeutic Technic. By Albert S. Morrow, M. D. Octavo of 85 pages, with 815 original line drawings. Price, cloth \$5.00 net. W. B. Saunders Co., Philadelphia and London.

A Treatise on Diagnostic Methods of Examinations. By Prof. Dr. Herman Sahli. Octavo of 1229 pages, containing 472 illustrations. Cloth, \$6.50 net; half morocco, \$8.00 net. W. B. Saunders Co.

The Anatomic Histological Processes of Bright's Disease. By Horst Oertel, M. D. Octavo of 227 pages, with 44 illustrations and six lithographic plates. Cloth, \$5.00 net. W. B. Saunders Co.

Diseases of the Nose, Throat and Ear. Medical and Surgical. By William Lincoln Ballenger, M. D. Third edition, revised and enlarged, illustrated with 506 engravings and 22 plates. Lea and Febiger, Philadelphia and New York. 1911.

The Treatment of Syphilis with Salvarsan. By Dr. Wilhelm Wechselsmann, of Berlin. With an Introduction by Professor Dr. Paul Ehrlich of Frankfurt-on-Main. Only Authorized Translation by Abr. L. Wolbarst, M. D. of New York. With 15 textual figures and 16 colored illustrations. Rebman Co., New York and London. Price, cloth, \$5.00.

Progressive Medicine. Vol. XIII, No. 1. Edited by Hobart Amory Hare, M. D., assisted by Leighton F. Appleman, M. D. March 1, 1911. Lea & Febiger, Philadelphia and New York. \$6.00 per annum.

The General Practitioner as a Specialist. By Jacob Dissinger Albright, M. D. Fourth Edition, revised, enlarged and illustrated. Published by the author, 3228 North Broad St., Philadelphia, Pa. Price \$3.00 prepaid.

### Medical News.

The Charity Hospital Medical Society met at the Hospital March 1, 1911. The program consisted of a Symposium on Hypertrophic Cirrhosis of the Liver: 1. Physiology of the Liver, P. S. Bailey; 2. Pathology of the Liver, F. G. Boudreau; 3. Ascites, O. T. Thomas; 4. Clinical

Symptoms, Carlyle Pope; 5. Medical Treatment, H. J. Lee; 6. Surgical Treatment, C. A. Hamann.

**The Lakeside Hospital Medical Society** held the fifty-third monthly meeting on Wednesday, March 29, 1911. The program was as follows: 1. Report of a Case of Coxa Vara, H. O. Feiss. 2. Treatment of Post-operative Septic Peritonitis with Report of Cases, Hunter Robb. 3. Phylogenetic Association in Relation to Graves' Disease and Sexual Neurasthenia, G. W. Crile.

**H. D. Peterson, Sandusky**, on March 10, 1911, received the appointment as Health Officer of Sandusky in the place of W. D. Hoyer.

**The Erie County Medical Society** having died a natural death, there having been no meeting since the officers were elected in Dec., 1910, a petition has been circulated in Sandusky for the purpose of organizing a permanent medical body to elevate the medical profession. The petition has been signed by all to whom it has been presented and it is hoped that it will result in a good live medical organization.

**Meetings of the Academy of Medicine of Toledo and Lucas County:**

The Surgical Section met Friday, February 24, 1911. The program was as follows: 1. Some Signs in the Differential Diagnosis of Cortical and Subcortical Lesions, including the Subject of Diaschisis, Louis Miller. 2. Ocular Manifestations of Certain Surgical Intracranial Conditions, Charles Lukens. 3. Surgery of Brain Compression, Sidney D. Foster; discussion opened by F. W. Alter and James Lasalle.

The Pathological Section met Friday, March 10, 1911. The program was as follows: 1. A Review of the Theories of the Etiology of Cancer, R. L. Bidwell. 2. Recent Investigation upon the Etiology of Cancer, G. B. Booth. 3. Treatment of Carcinoma and Sarcoma, F. M. Freeman; discussion opened by C. F. Tenney and J. H. Jacobson.

The Medical Section met Friday, March 15, 1911. The program was as follows: 1. Report of a Case of Bilateral Ophthalmoplegia Externa, F. W. Alter; discussion by Louis Miller and W. H. Snyder. 2. Recent Progress and Advances in the Physiology of the Gastro-Intestinal Tract, P. C. Pike. 3. Treatment of Constipation, L. Marsh Dolloway.

**N. W. Hole**, a graduate of Delaware Medical, 1898, and formerly practising in North Jackson, Ohio, has opened an office at 537 E. Market St., Alliance, O.

**G. L. King, Alliance**, has removed his offices from Seneca and Main to 537 E. Market St.

**Y. S. Burnett of Jeromeville**, has moved to Mansfield to practise.

**C. G. Brown, Mansfield**, has moved into his new home on Park Ave. West.

**The Richland County Medical Society** has furnished data and affidavits for the prosecution of L. L. Parry, quack medicine vendor, but so far without results.

**The Stark County Medical Society** met at the City Hall Massillon, March 21, 1911. The program was as follows: 1. The Medical Management in Prevention of Infectious Diseases, Chas. H. Ross, Alliance, O.; discussion opened by M. M. Bauer, Lake, O. 2. The Sanitary Management of Infectious Diseases, L. A. Buchman, Canton, O.; discussion opened by N. W. Culbertson, Massillon, O. 3. Report of a Case of Placenta Praevia, L. B. Santee, Marlboro, O. 4. Abnormal Labor, Report of Cases, H. W. Faulk, Canton, O.

**The Muskingum County Medical Society** met at the Good Samaritan Hospital, Zanesville, Wednesday, March 8, 1911. A. Ravogli, Cincinnati, gave a résumé of his work with "salvarsan" and a demonstration upon two patients of both the subcutaneous and intravenous methods of administration. The Sisters of the hospital served lunch after the meeting.

**Oscar Hasencamp, Toledo**, has been appointed member of the State Board of Health.



**Edward J. Wilkinson, Toledo**, has been commissioned Captain and Assistant Surgeon of the Ohio National Guard.

**W. W. Coldham, Toledo**, has returned from a visit to Old Point Comfort.

**Robinwood Hospital, Toledo**, is to receive \$5,000 annually to care for that city's emergency cases.

**Gratian Whitwham, Toledo**, has moved his office to the Colton Building.

**Trachoma** has been found in the Toledo schools, 35 cases having been reported.

**Toledo** will provide a school for tuberculous children in the near future.

**Flower Hospital, Toledo**, announces the following appointments to its staff: chief of staff, Sidney Dix Foster; surgical chief, C. N. Smith; surgery, Sidney Dix Foster, A. F. McVety, Homer H. Heath and Clarence D. Selby; gynecology, C. N. Smith, C. W. Moots and J. F. Fox; medical chief, W. J. Stone; medicine, W. J. Stone and C. F. Tenney; pediatrics, George L. Chapman; eye, ear, nose and throat, Chas. Lukens and Walter H. Snyder; obstetrics, W. G. Dice; neurology, Louis Miller; dermatology, Edwin D. Tucker; and roentgenology, Harry Dachtler.

**The Childrens Dispensary, Toledo**, conducted by the District Nurses Association, has appointed the following staff: G. M. Booth, chief, H. E. Smead, George L. Chapman, Jas. A. Duncan, C. E. Price, A. J. Steinfeld, F. A. Leslie, and B. G. Chollett.

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### Deaths.

**Edwin F. Burkert**, Dayton, Ohio, died September 21, 1910, aged 53.

**John W. Barry**, Springfield, Ohio, died November 3, 1910, aged 64.

**John B. Hollingsworth**, Quaker City, Ohio, died January 16, aged 78.

**Thomas Blackwood**, Flushing, Ohio, died February 20, aged 62.

**John E. Sommers**, North Baltimore, Ohio, died February 26, aged 50.

**Reuben C. Hoover**, Osborn, Ohio, died March 19, aged 89.

**William D. Stewart**, Toledo, Ohio, died March 28, aged 63.

**Frank D. Smith**, Hartville, Ohio, died March 13, aged 57.

**John W. Alexander**, Newark, Ohio, died March 30, aged 60.

**George W. Fels**, Cincinnati, Ohio, died March 30, aged 60.

**James Cress**, North Georgetown, Ohio, died April 2, aged 80.

**Stephen A. Ireland**, Washington Court House, Ohio, died January 25, aged 62.

**Frederick Clinton Taylor**, who died at the age of 41 at Biloxi, Miss., March 9, was a native of Cleveland, having been born and reared here. He received his medical degree from the Medical Department of the University of Wooster in 1891. After serving as Resident at the City Hospital for one and a half years he began the practice of medicine on the West Side. After practicing for several years he spent a year abroad and upon his return devoted himself almost exclusively to surgical practice. He was for a number of years on the Staff at St. John's Hospital. After resigning from that, he became a member of the Staff at Lutheran Hospital and held the position of Consulting Surgeon at the time of his death. Doctor Taylor's personality and optimism made him a great favorite and he had hosts of friends, not only among the laity but in the profession. He was a member of the Cleveland Academy of Medicine, Cleveland Medical Library Association, of the Ohio State Medical and American Medical Association. He always took a deep interest in the Medical Library and always willingly contributed his share for any special needs of the Library. He was a most generous giver and without any show or pretense became a benefactor to a great host of people in need and who appealed to him for aid.

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## Measurement of the Rate of Flow of the Blood in Man.

By G. N. STEWART, M. D., Professor of Experimental Medicine, Western Reserve University, Cleveland.

(From the H. K. Cushing Laboratory of Experimental Medicine—Western Reserve University.)

For many puposes it is more important to know the rate at which the blood is flowing in an organ, the so-called mass movement of blood, than to know the pressure in the artery supplying the organ or part. The arterial pressure is not by itself a measure of the flow. With a high arterial pressure the flow may be small, with a low arterial pressure it may be large. For the rate of passage of the blood from arteries to veins obviously does not depend upon the arterial pressure alone, any more than the quantity of water which flows per minute along a pipe depends solely upon the height above the ground of the reservoir which feeds it. Two other factors of prime importance are concerned (the viscosity of the liquid itself being assumed to be constant): (a) the cross section of the pipe, (b) the height above the ground of the orifice from which the water escapes. (a) corresponds to the caliber of the vessels between artery and vein, (b) to the venous pressure.

At present we possess no method for measuring the blood flow which is at once simple enough and accurate enough for clinical purposes. I have accordingly worked out a method\* which permits the quantity of blood passing through a

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\*A preliminary account (including the results of measurements of the bloodflow in the hands in a case of birth palsy of one hand and in a case of infantile paralysis) was communicated to the Society for Experimental Biology and Medicine, December 21, 1910 (Proceedings, Vol. VIII, p. 43). Further data were communicated to the American Physiological Society, December 29, 1910 (*Journal of Physiology*, 1910, Vol. XXVII, p. XX.)



part like the hand to be easily determined with approximate accuracy. Changes produced in the flow by reflex vasomotor influences, especially those connected with changes in external temperature, by the application and withdrawal of a tourniquet or Bier's bandage, by alterations in the mechanics or chemistry of the respiration, as in forced breathing or the inhalation of oxygen, and by muscular exercise, have also been investigated in this way in normal and clinical cases.

#### METHOD.

The method depends upon the fact that the amount of heat produced by a part like the hand during rest is negligible in comparison with the heat conveyed to it by the arterial blood. If, then, we determine the amount of heat given off by the hand to a calorimeter in a given time, and know the temperature of the incoming (arterial) and of the outgoing (venous) blood, we can calculate how much blood must have passed through the hand in order that it might give off this amount of heat. The quantity of heat given off is estimated by putting the hand into a calorimeter† such as is shown in Fig. 1.

It consists of an interior copper vessel containing a known amount of water (in the experiments usually about three litres), into which the hand is inserted through an orifice of appropriate size and shape in the lid, heat-tight closure being made by the collar of thick felt shown on the top of the calorimeter. The interior vessel is packed in broken cork in a larger outer vessel and the lid is covered with sheet cork to reduce as far as possible the loss of heat, and to protect the calorimeter against irregular cooling when exposed to draughts. The actual loss is estimated by separate experiments, and added to the amount of heat given off by the hand as indicated by the rise of temperature in the water. The hand is prepared for insertion into the calorimeter by a preliminary immersion, for not less than ten minutes, in a large bath containing water at approximately the same temperature as that in the calorimeter. The temperature of the water in the calorimeter is read on a thermometer permitting hundredths of degrees to be accurately estimated. The calorimeter is mounted on a stand which can be raised or lowered by a screw to permit its use either for a patient sitting in bed or for an ambulatory patient who is able to sit in the high chair shown in Fig. 2. As a general rule the

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†The calorimeter and stand were made by my laboratory assistant, Mr. M. Chaikin, who has aided materially in the investigation in other ways.

flow in the two hands is simultaneously measured. The quantity of blood in grammes flowing through the hand in the time of the experiment is given by the formula  $Q = \frac{H}{T - T^1} \cdot \frac{I}{s}$  where  $Q$

is the quantity of blood,  $H$  the heat given off by the hand,  $T$  the temperature of the arterial blood,  $T^1$  the temperature of the venous blood, and  $s$  the specific heat of blood. In estimating  $H$  the water equivalent of the hand itself (obtained by multiplying its volume by 0.8) and the water equivalent of the calorimeter (80 grammes) must be added to the quantity of heat corresponding to the actually observed rise of temperature. The specific heat of blood is taken at 0.9. Knowing the volume of the hand, we can express the flow in grammes per minute per 100 c.c. of hand substance. The volume of the hand is easily estimated by the amount of water which it displaces, when immersed in a glass douche can to the level to which it was inserted into the calorimeter. The douche can is connected by the tubulure to a burette, on the scale of which the vertical displacement of the water is read off. The amount of water which must be added to that in the can in order to give the same level in the burette is clearly the volume of the hand. The distance to which the hand is to be inserted into the calorimeter is fixed by making a horizontal mark with a pencil at the level of the lower border of the styloid process of the ulna. A parallel mark is drawn above this at a distance equal to the combined thickness of the felt collar and the lid of the calorimeter, and this second mark is just kept in view above the collar during the experiment. The lower mark must then define the limit up to which the hand is enclosed in the calorimeter. The collar is supported by a flange around the orifice. The temperature of the arterial blood at the wrist is taken as  $0.5^\circ$  below the rectal temperature, since this was the difference actually found in a normal person. It can be measured by determining that temperature of the calorimeter at which the hand neither gains nor loses heat. Where the rectal temperature cannot be conveniently obtained the mouth temperature is taken as that of the arterial blood at the wrist. The temperature of the venous blood is taken as the average temperature of the calorimeter during the experiment, since direct estimations of the temperature of blood collected by puncture of hand veins, during immersion of the hand in baths at known temperatures, showed that the excess of the temperature of the venous blood over that of the



bath was so small as to be negligible for such bath temperatures as are used in the experiments. All details of these observations are omitted here. A paper containing a full description of the method and the observations made to test it, with a summary of results thus far obtained, has been sent to *Heart*.<sup>\*</sup> The following hitherto unpublished protocols will illustrate the method and give an idea of the general range of the blood-flows as estimated by it. It may be remarked here that since no account has been taken of the small excess of temperature of the venous blood over that of the calorimeter which must necessarily exist even in the superficial veins, the results cannot be too large, but may, on the contrary, be somewhat below the true values. This is important because for nearly all purposes it is much more useful to know the minimum flow below which the true flow cannot lie than to know the possible maximum flow. Some of the blood leaves the hand by deep veins, but the dimensions of the part and the anatomical situation of the vessels make it certain that no great error can be introduced by taking the temperature of the blood in the superficial veins as the average temperature of the whole of the blood as it leaves the hand.

F. C. Southern Italian, born in Naples. Age 17. Patient at Dispensary|| with mitral stenosis and insufficiency. Heart hypertrophied and good compensation, although he has some shortness of breath on exertion. Pulse 116 (sitting). Height 5 ft.,  $\frac{1}{2}$  inches; weight 87 pounds. Rectal temperature 37.8°. Had been in dispensary for about three quarters of an hour before experiment. Had taken a bath, not very warm, before coming. His hands did not feel especially warm before being put into bath.†

2:37 p. m. Hands put into bath at 30.4°. Room 22.2°.

2:46 p. m. Bath temperature is now 30.0°.

2.47.15 p. m. Put hands into calorimeters, right into A left into B; 3050 c.c water in each.

Time	A	B	Time	A	B
2.47	29.90		2.57	30.21	30.12
2.49	29.87	29.73	2.59	30.29	30.20
2.50	29.88	29.79	3.01	30.39	30.30
2.51	29.90	29.81	3.02	30.42	30.35
2.52	29.94	29.86	3.03*	30.48	30.38
2.54	30.03	29.98			
2.55	30.10	30.01	3.17	30.32	30.21

\*At 3.03 hands withdrawn from calorimeter. Room 22.7°.

Volume of right hand 275 c.c., of left hand 250 c.c.

\*Vol. II, 1911.

||"Dispensary" in the protocols means the Dispensary of Western Reserve University and Lakeside Hospital. I take this opportunity of thanking the staff of the dispensary and hospital for the courtesy and zealous cooperation which have so greatly aided me in carrying on this work.

†These points are noted because the external temperature conditions, if not carefully controlled, may easily modify the results of the measurements in a way impossible to allow for.

For the last 12 minutes of the experiment the flow comes out 30.96 grammes of blood per minute for the right hand and 29.97 grammes for the left, i. e., 11.25 grammes per minute per 100 c.c. of hand for the right, and 11.58 grammes for the left. In spite of the cardiac lesion this is a good flow, considerably larger, indeed, than in the boy J. R., who, so far as is known, is normal. It is probable that during exertion carried beyond the limits of the cardiac compensation in F. C., the opposite result would be obtained. It was not, of course, justifiable to put this to an actual test. It should be remarked, further, that the measurements in the case of J. R. were made at somewhat lower calorimeter and room temperatures than in the case of F. C. Also J. R. was in the open air for a few minutes on a very cold morning just before the experiment. Both circumstances would tend to reduce the blood-flow in his hands to some extent.

J. R., Hebrew, born in Kiev (southern Russia). Age 17. Height 5 ft., 4 inches. Weight 125 pounds. Pulse (sitting) 75. Rectal temperature 37.05°.

11.22 a. m. Hands put into bath at 29.7°. Room 21.2°.

11.32.15 Hands put into calorimeters. As usual, right into A, left into B; 3050 c.c. water in each.

Time	A	B	Time	A	B
11.31.30	29.01	29.08	11.41	29.26	29.41
11.34	29.02	29.14	11.42	29.30	29.48
11.35	29.07	29.16	11.43	29.38	29.53
11.36	29.09	29.20	11.45*	29.47	29.65
11.38	29.13	29.27	11.52	29.39	29.57
11.40	29.21	29.38	11.59	29.28	29.48

\*At 11.45 hands taken out of calorimeter. Room 20.9°.

Volume of right hand in calorimeter 330 c.c., volume of left hand 312 c.c.

The calculated flow for the right hand (for the last 11 minutes of the experiment) is 27.24 grammes per minute, or 8.2 grammes per 100 c.c. of hand per minute. For the left hand the corresponding quantities are 30.51 grammes, and 9.7 grammes.

A very different picture from that of F. C. was presented by S. F., in whom at the time of examination compensation was obviously badly broken. (See Protocol p. 393.)

So far about 40 separate experiments have been made on six normal persons and about 50 experiments on 40 clinical cases. The latter included Raynaud's disease, obliterative arteritis, birth palsy, infantile paralysis, hemiplegia, Graves' disease, progressive muscular atrophy, peripheral neuritis, pernicious anemia, cyanosis associated with emphysema, thoracic



aneurism, aortic stenosis and insufficiency, mitral stenosis and insufficiency, myocarditis, pleurisy (tuberculous) with effusion, pulmonary tuberculosis, arteriosclerosis, tabes, angina pectoris, secondary anemia due to severe gastric hemorrhage, inflammation of one hand due to infection, etc.

In many of the clinical cases and in some of the normal subjects, in addition to simple measurement of the blood flow, the changes produced in it by vasomotor reflex reactions, especially those elicited in one hand by altering the temperature of the other, were studied. A much larger clinical material is being collected and further experiments on normal persons are being made.

In the normal cases the flow when measured under the standard conditions—viz. bath and calorimeter temperatures not far removed from 30°, ordinary room temperature, and a moderate period of immersion in the calorimeter (10 to 15 minutes)—did not exceed 14 grammes per 100 c.c. of hand per minute or fall below 3.5 grammes, in different individuals. The range for one and the same person on different days was much less. The higher the room temperature, the greater in general is the flow. When this factor is taken into account the results in one and the same individual on different days, with similar calorimeter temperatures, do not differ greatly, although different individuals when tested under apparently similar conditions show a much greater range in the blood-flow. Some normal persons know and say that their hands are habitually cool or cold, others that their hands are habitually warm. The former will have a relatively small and the latter a relatively large flow of blood in the hands as estimated by this method. Thus, one of the laboratory assistants (M. C.) showed the following flows on different days:

Mean Temp. of Calorimeters.      Flow per 100 c.c. hand per min.      Room.

Right.	Left.	Right.	Left.	
28.00	27.80	10.1	9.4	20.2
29.71	29.46	13.7	12.5	21.1
30.35	30.34	12.66	12.76	22.8
29.19		12.67		19.0
29.94	29.93	11.85	11.29	21.1
29.07	31.44	13.66	13.48	20.5

Another laboratory assistant (C. B.) gave flows of 4.35 grammes and 3.40 grammes per 100 c.c. of hand per minute for the right and left hand respectively, with a calorimeter tempera-

ture of  $29.4^{\circ}$  and a room temperature of  $20.0^{\circ}$ . In the first mentioned case (M. C.) the flow was never under any ordinary conditions found anything like so small. Even with a calorimeter temperature of  $22.8^{\circ}$  (room temperature  $22.0^{\circ}$ ), it was still 7.77 grammes and 7.46 grammes respectively for the two hands. The two young men are about the same age and work under much the same conditions, but C. B. states that his hands are habitually cool and when they get cold take a long time to warm up. They seldom or never sweat. On the other hand M. C. is aware that his hands are usually warm and often sweat.

The influence of muscular contraction in increasing the flow is easily demonstrated. Thus with a calorimeter temperature of about  $24.38^{\circ}$  and  $23.64^{\circ}$  for the right and left hand respectively and a room temperature of  $21^{\circ}$ , the flow was 15.4 grammes per 100 c.c. per minute for the right hand while it was being made to contract in the calorimeter and only 4.9 grammes for the left, which remained at rest. Since 4.9 grammes is a much smaller flow than was ever found in this person (M. C.) with both hands at rest, the increased flow in the contracting right hand is accompanied by a diminished flow in the contralateral hand.

The diminution in the flow caused by a moderate degree of obstruction to the venous circulation (a rubber band constricting the wrist, but not very tightly) can also be very simply measured. Thus, in an experiment on one of the normal persons (S.), the flow in the left hand which had been 13.2 grammes and 13.1 grammes per 100 c.c. per minute in two experiments immediately preceding the constriction, was diminished to 4.2 grammes per 100 c.c. per minute for the first four minutes after constriction. For the next 6 minutes the flow rose to 9.3 grammes per 100 c.c. per minute, owing, of course, to the gradual increase of the venous pressure distal to the band, which enabled the obstruction to be more and more successfully overcome. The high initial flow observed in this person was due to two factors, (a) a relatively high room temperature ( $24^{\circ}$ ), (b) the fact that the cutaneous circulation of this individual is habitually copious.

In another experiment (on M. C.), in which the upper arm was compressed on the right side by inflation of the cuff of an Erlanger sphygmomanometer, the flow for the right hand fell from 8.74 grammes to 4.52 grammes per 100 c.c. per minute. The initial flow was unquestionably diminished somewhat, even



by the application of the cuff, without inflation, for at the same time the flow in the left hand was 10.83 grammes per 100 c.c. per minute.

The influence of direct heating of the hand (high bath and calorimeter temperatures) in increasing the flow is also followed without difficulty. Thus, in three experiments on the same person (S.) with calorimeter temperatures above that of the arterial blood the flows were, without exception, the greatest observed in the whole series of observations, viz: 16.3 grammes per 100 c.c. per minute with calorimeter temperature  $39.6^{\circ}$ , 16.5 grammes with calorimeter temperature  $41.5^{\circ}$ , and 18.3 grammes with calorimeter temperature  $39.09^{\circ}$ , all for the left hand. Where the calorimeter temperature is above that of the arterial blood the blood abstracts heat from the calorimeter, instead of giving off heat to it, and it is from the *fall* of temperature in the water (corrected of course for the loss of heat to the surroundings) that the flow has to be calculated.

The effect of forced breathing on the blood flow in the hand was tested in two normal persons. It was found to distinctly diminish it. The increase in the respiratory movements was by no means excessive. Yet in one case (M. C.) the flow fell from 12.66 grammes to 8.62 grammes per 100 c.c. of hand per minute for the right hand and from 12.76 grammes to 9.20 grammes for the left hand, to rise again when breathing became normal. In the other case (C. B.) the relative change was even greater although the initial flow was less. It would lead us too far to discuss here the significance of this result. One might think of the acapnia caused by the washing out of the carbon dioxid as a possible influence. Mechanical changes in the thorax, and particularly those affecting the filling and discharge of the heart, must also be taken into account. One moral to be drawn is that while the respiratory pump plays a part of some consequence in the normal movement of the blood, and may even become the preponderant factor when the heart and the vasomotor mechanisms are crippled, the idea of the "deep-breathing" fanatics that voluntary interference with the exquisitely regulated respiratory mechanics *must* be good receives no support, at least so far as the circulation in the periphery is concerned.

In the pathological group of cases the very smallest flow seen was in a case of "dead fingers" in one hand (0.09 grammes per 100 c.c. per minute). In the other hand, which was cold, but in which

the fingers never became "dead" the flow was greater although markedly feeble (0.25 grammes). Extremely small flows were also observed in two cases of myocarditis with pronounced arrhythmia. The smallest (0.2 grammes per 100 c.c. per minute) was in a man 31 years of age (see protocol S. F.) who was received into the hospital immediately after the examination, and died there in a few days. The arrhythmia was so marked that it was necessary to count the pulse rate with the stethoscope. The protocol is quoted to illustrate those rather rare cases where the heat given off by the hand is not sufficient to balance the loss by the calorimeters, and the temperature is falling slightly during the whole experiment. It is obvious that the degree of accuracy with which such a feeble blood flow as this can be measured is much less than with a normal flow.

S. F. Magyar. Age 31. A contractor in a small way for brick and carpenter work. Between three and four years ago after a heavy lift he says he became ill and has never been well since. Heart enlarged with marked arrhythmia. Some edema of ankles and legs. Jugular veins much dilated when he lies down. Skin pale and cool. He says his hands and feet are always cold. Although the weather is mild, his hands feel cold. Diagnosis in dispensary record, myocarditis without valvular lesion. He was admitted this afternoon to the hospital where he died after a few days. The immediate cause of death was pontine hemorrhage. At autopsy, the findings were myocarditis with relative insufficiency; pericarditis, perihepatitis, and atrophic cirrhosis, acute pulmonary edema, no valvular lesion.

Pulse rate 60. Height 5 ft. 9 inches. Mouth temperature 36.35°.

2.45.30 p. m. Put hands into bath at 30.0°. Room 23.1°.

2:57 p. m. Put hands into calorimeters, right into A, left into B; 3015 c.c. water in each.

Time	A	B		Time	A	
2.56	29.65	29.71		3.13	29.49	
2.58	29.60	29.66	Room 23.5	3.14	29.49	Room 23.3
2.59	29.59	29.64		3.15	29.48	
3.00	29.58	29.64		3.16	29.48	
3.01	29.57	29.62		3.17	29.48	
3.02	29.57	29.63		3.18	29.47	
3.03	29.57	29.63		3.19	29.47	
3.04	29.56	29.61		3.20	29.46	At 3.20 left hand
3.05	29.55	29.60		3.21	29.45	dried and wrapped
3.06	29.54	29.60		3.22	29.44	in a towel.
3.07	29.53	29.60	Room 23.5	3.23	29.44	Room 23.1
3.08	29.52	29.59		3.24	29.43	
3.09	29.51	29.59		3.25	29.42	At 3.25 took right
3.10	29.51	29.57		3.38		hand out of calo-
						rimeter.
3.11	29.50	29.56		3.41	29.28	B is now 29.34.
3.12		29.54	At 3.12 put			Room 23.5
			left hand into			
			warm water			Volume of right hand 455 c.c.
			(at 44°).			Volume of left hand 430 c.c.

It was seen that after coming out of the warm water, the veins of the left hand were only slightly dilated although the hand was red.



The calculated blood flow (for ten minutes while both hands are in the calorimeters) is only 0.98 grammes per minute for the right and 0.99 grammes per minute for the left, corresponding to 0.2 grammes per 100 c.c. of hand per minute. Immersion of the left hand in warm water caused some increase in the flow in the right hand (vasodilatation), to 0.5 grammes per 100 c.c. per minute. Qualitatively this is the normal reaction, and in proportion to the original flow the flow during the immersion of the contralateral hand in the warm water is markedly increased although the absolute increase is small. A comparison with the experiment on J. O'R., whose original flow was much more normal (for his age), will be instructive.

J. O'R. Patient at Dispensary, Age 60. Height 5 ft. Laborer. He has an emphysematous chest. Considerable arteriosclerosis and venosclerosis. Yet he was able to work on the streets, and came to the dispensary ten days ago in consequence of an accident. A box fell on his chest. It does not appear to have produced any serious effects. Pulse 91 (sitting). Mouth temperature 37.0°.

2.50 p.m. Put hands into bath at 29.8°.

3.01 p.m. Put hands into calorimeters, right into A, left into B; 3015 c.c. water in each.

Time	A	B	Notes.	Time	A	Notes.
3.00	29.53	29.50		3.14	29.89	
3.02	29.52	29.54		3.15	29.91	
3.03	29.55	29.55		3.16	29.93	
3.04	29.57	29.60		3.17	29.95	The cold water is now at 11.0.
3.05	29.60	29.61	Room 23.0	3.18	29.98	Room 22.9
3.06	29.62	29.63		3.19	30.01	
3.07	29.67	29.69		3.20	30.03	
3.08	29.70	29.72		3.21	30.07	At 3.21 transferred left hand to water at 44°.
3.09	29.74	29.76		3.22	30.09	
3.10	29.79	29.82		3.23	30.11	
3.11	29.82	29.86		3.24	30.13	Room 24.0
3.12	29.85	29.90		3.25	30.13	
3.13	29.87	29.92	At 3.13 put left hand in cold water (at 9.2).	3.26	30.19	The warm water is now at 43.4°.
				3.27	30.24	
				3.28	30.28	
				3.29	30.31	B is now 29.78. At 3.29 took hand out of A.
				3.43	30.17	B 29.66

Volume of right hand 395 c.c., of left 425 c.c. He was a left-handed man, although he now uses the right more than the left hand, in spite of the fact that his right arm was broken three years ago and is somewhat shorter than the left.

From these data the calculated flow comes out 5.49 grammes per 100 c.c. per minute for the right hand and 5.44 grammes for the left. During the immersion of the left hand in cold water the flow in the right diminishes somewhat (to 4.78 grammes),

to further diminish (to 3.47 grammes) for a short time after transference of the left hand to warm water (possibly because the water was too hot). During continued immersion of the left hand in warm water the flow in the right rises to 7.78 grammes. The vasomotor reaction to cold in this case is of less than normal intensity. It would scarcely be profitable to speculate, till further data have been secured, whether this is due to the arteriosclerosis or to the fact that his hands are accustomed to cold from his occupation. The reaction to warmth is considerable, as is to be expected, since the vasodilatation starts with vessels only moderately dilated.

In a case of pernicious anemia, with an erythrocyte count of 2,000,000, the flow was only 2.05 grammes per 100 c.c. per minute for the right hand and 1.73 grammes for the left. His mouth temperature was 37.35°. Four months previously, while suffering from erysipelas and with a rectal temperature of 38.9° the same patient had a flow of 8.8 grammes per 100 c.c. per minute in the right hand, although he was lying in bed during this observation and sitting up during the other. His erythrocyte count at this time was also very low, less than 2,500,000. The difference in the flow, however, is not really so great as it appears, although considerable difference might be expected on account of the fever. For with the patient lying down it was only possible to immerse the distal half of the hand. Now in a normal person (M. C.) the flow in the distal half of the hand was found considerably greater per 100 c.c. of hand substance than in the whole hand, doubtless owing to the greater proportion of skin. In a case of anemia due to acute hemorrhage from the stomach ten days before examination (gastric ulcer) the flow was 7.02 grammes per 100 c.c. per minute for the right and 6.90 grammes for the left. The erythrocyte count was only 2,250,000.

In a woman aged 72, with marked cardiac arrhythmia (myocarditis), arteriosclerosis and feeble pulse, the flow was only a little over 0.6 grammes per 100 c.c. per minute. This result accorded well with the appearance of the skinny anemic hands.

The greatest flow observed in the pathological group was in a man, 44 years old, suffering from chronic bronchitis with marked emphysema. He exhibited from time to time cyanosis unaccompanied by dyspnea, but with a tendency to the Cheyne-Stokes type of respiration. Experiments were made in this case on six different days, covering a period of two months. The



highest flow was 15.90 grammes (for the right hand) with room temperature  $22.0^{\circ}$ ; the next highest, 14.66 grammes with room temperature  $22.9^{\circ}$ .

The effect of oxygen administration in this case was to distinctly increase the flow—in one experiment from 8.51 grammes per 100 c.c. per minute to 11.46 grammes for the right hand and from 9.79 grammes to 12.29 grammes for the left hand, with room temperature  $19.4^{\circ}$ ; in another experiment from 7.13 grammes to 9.99 grammes for the right hand and from 9.05 grammes to 11.7 grammes for the left hand with room temperature  $19.6^{\circ}$ . The action was not due to any change in the mechanics of the respiration produced by the mask or the tube through which the oxygen mixture was inhaled. For (a) the total ventilation remained unchanged, (b) as already mentioned, a moderate degree of forced respiration diminished the flow in normal persons. In two normal subjects oxygen inhalation produced no increase in the flow. Discussion of the way in which oxygen causes this effect is reserved for the present. It is perhaps worth considering whether in other cyanotic conditions, as when administered in pneumonia, for example, the action of oxygen is not in part an action on the vasomotor mechanism which diminishes the resistance in the small vessels, and so aids the flow.

It has already been indicated that the exploration of the vasomotor reflexes in the hand is easily accomplished by this method.

In a normal person (M. C.) the flow in the right hand was reduced from 12.67 grammes per 100 c.c. per minute to 6.64 grammes by immersion of the left hand in cold water (at  $10^{\circ}$ ). The diminution in flow persisted for the six minutes during which the left hand was in the cold water. It is of interest to note the promptitude and persistence of this contralateral vasomotor reflex in the normal person because marked differences were observed in some of the pathological cases. In certain cases the reflex, though prompt in onset, was much more transient than normal. In others it was slow in appearing, though perhaps as persistent as in normal individuals when it did appear. In others still, it could only be feebly elicited or was absent. Immersion of one hand in warm water causes the opposite effect, increase of the flow in the other hand, in the normal individual. This increase is in general the more distinct the

smaller the initial flow, just as the diminution produced by cold is the more distinct the larger the initial flow. The contralateral "warmth reflex" is obtained in marked intensity when it is elicited in a hand in which the contralateral "cold reflex" has previously been evoked and is still present.

In a case of progressive muscular atrophy in a woman aged 46 the contralateral vasomotor reflex elicited by cold was very prompt and persistent. The flow in the left hand diminished from 7.13 grammes to 3.70 grammes per 100 c.c. per minute, and the diminution lasted during the eight minutes' immersion of the right hand in cold water (at 8°). Warm water at a temperature (43°) which causes vasodilatation in the contralateral hand in the normal individual evoked in this case a further small diminution of the blood flow. The apparent paradox was explained by the statement of the patient that the warm water produced painful tingling of the immersed hand. The vasoconstriction was, therefore, a pain effect.

In a case of Raynaud's disease in a girl 15 years of age, immersion of the right hand in cold water instantly cut down the flow in the left from 6.67 to 2.97 grammes per 100 c.c. per minute. The vasomotor reflex to cold was thus exceedingly strong. But it was much more transient than normal and gave way to an increased flow (vasodilatation) even while the right hand continued in the cold water. This is quite in harmony with the current notion that an underlying factor in Raynaud's disease is instability of the vasomotor adjustment. In a second case\*, that of a woman, aged 28, a precisely similar reaction was observed.

In a man\* one of whose legs had been amputated four years ago for gangrene caused by obliterative arteritis, and who was threatened with the same condition in the remaining foot, a similar intense contralateral vasomotor reaction to cold was obtained in the hands, although no manifest signs of trouble had appeared in the upper limbs. Thus immersion of the right hand in cold water at once diminished the flow in the left from 6.67 grammes to 2.59 grammes per 100 c.c. per minute. The diminution persisted five minutes, but then gave way to an increase (to 5.59 grammes) while the right hand continued in the cold

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\*For the opportunity of examining these cases and several others I am indebted to my friend, Dr. Peskind. Dr. Feiss has also helped me in this way.



water. Subsequent immersion of the right hand in warm water caused an increase in the flow in the left hand to 10.96 grammes. So far as this goes, the suggestion is that in this case a factor in inducing the organic change in the vessels may be a functional vasomotor instability or hyperexcitability. When the foot calorimeters which are now being constructed are ready, it would be desirable to examine the foot of this patient.

In several cases of early peripheral neuritis confined to one upper extremity it was observed that the flow was distinctly greater on the affected than on the sound side. Thus in a brick-layer, aged 45 years, the flow on the affected (right) side was 10.29 grammes, and only 7.66 grammes per 100 c.c. per minute in the normal hand. The preponderance for the right hand is much greater than the slight excess which is usually found in right-handed individuals. The most plausible explanation is that the vasoconstrictor fibres of the hand are involved in the pathological process and are partially paralyzed. The vasomotor reaction in the affected hand to the immersion of the sound hand in cold water is prompt and strong (the flow being diminished from 10.29 grammes to 5.18 grammes) but it does not hold long, and the flow soon increases (to 8.16 grammes) while the sound hand is still in the cold water.

The same thing was seen, but in an even more marked degree, in a case of occupation neuralgia, probably with some neuritis, in a house carpenter. The protocol follows:

M. B. Age 24. Hebrew. Born in Russia. A house carpenter. Height 5 ft. 9 inches. Weight 155 pounds. Well built man with muscles of arms well developed. Pulse 92 (sitting). Mouth temperature 36.95°.

About one year ago, after unusually hard work, he felt his right hand painful at the wrist. No accident to which he could attribute it. It pained while he was working but not while resting. He stopped work two weeks. The pain troubled him to some extent after resuming work and then disappeared completely. But three months ago the wrist again became painful and gradually got worse. Now it hurts when he rests, especially at night in bed, and does not hurt when he works. Three fingers (index, middle and ring) also painful and sometimes become numb. Little finger and thumb not affected. No defect of sensation to prick or contact. There is pain on pressure between the metacarpals of the index and middle finger. He can get ease at night only by getting up and letting the hand and arm hang down. On compressing the radial and ulnar arteries at the wrist and at the same time elevating the hand one observed that pain began first in the index finger and then involved the middle and ring fingers, but did not affect the little finger and thumb. On relaxing the arteries the pain soon disappeared. After taking the right hand out of the calorimeter at the end of the experiment, he says there is a burning sensation in the three affected fingers, also over and between the corresponding metacarpals.

2.43 p. m. Hands put into bath at 30°.

2.53.30 p.m. Put hands into calorimeters, right into A, left into B;  
3015 c.c. in each.

Time	A	B	Notes.	Time	A	Notes.
2.55	29.75	29.93		3.11	31.11	Room 24.35.
2.56	29.90	30.06		3.12	31.19	
2.57	29.98	30.16	Room 24.5	3.13	31.27	At 3.13 put left hand
2.58	30.09	30.23		3.14	31.32	into warm water (at
2.59	30.20	30.35		3.15	31.40	43.2°).
3.00	30.32	30.48	Room 24.5	3.16	31.49	The warm water is
3.01.10	30.44	30.59		3.17	31.57	now at 40.7°.
3.02	30.52	30.67		3.18	31.65	Room 24.25.
3.03	30.63	30.78		3.19	31.73	
3.04	30.72	30.84	At 3.04 put left	3.20	31.80	At 3.20 dried left hand
3.05	30.77		hand into cold	3.21	31.87	and wrapped it in
			water (at	3.22	31.93	warm towel.
			8.2°).	3.23	32.00	Room 24.25.
3.06	30.80		Room 24.45	3.24	32.07	At 3.24 took hand out
3.07	30.84		The cold water			of calorimeter. Room
3.08	30.91		is now 10.2°.			24.3.
3.09	30.99			3.49	31.75	B is now at 30.41.
3.10	31.07					Room 24.2.
						Volume of left hand 488 c.c.
						Volume of right hand 500 c.c.

Calculation from these data shows that the flow in the affected hand was cut down from 13.89 grammes to 7.25 grammes per 100 c.c. per minute by immersion of the sound hand in cold water. But it soon increased to 11.13 grammes per 100 c.c. per minute while the sound hand continued immersed in the cold water.

In a case of long standing right brachial neuritis with marked atrophy of muscles and practical disuse of the hand, the flow was found much less in the affected than in the sound hand (3.98 grammes as against 5.70 grammes). In case of hemiplegia (cerebral hemorrhage) of nine years' standing the difference was in the same direction, the flow being 4.67 grammes in the paralyzed and 9.15 grammes in the normal hand. Absolutely no vasomotor reaction could be elicited in this case in the paralyzed hand when the sound hand was placed either in cold or warm water. The secondary changes in the blood vessels of the paralyzed hand and in the vasomotor endings may be supposed to constitute an effective organic block to the reflex vasomotor impulses. A similar block, but a functional one, was demonstrated in a case with one hand inflamed in consequence of infection of a finger. The flow of the affected hand was 11.93 grammes (or, allowing for the effused liquid, 13.05 grammes per 100 c.c. of actual hand substance per minute) while in the sound hand it was only 4.92 grammes. The effect produced on the flow in the inflamed hand



by immersion of the normal hand, whether in cold or in warm water, was very slight. It seems an advantageous arrangement that the vasodilatation so essential for the reparative process should be thus guarded against interference by casual vasoconstrictor influences.

In the only case of Graves' disease so far examined the flow in the hands was exceptionally large, a fact quite in agreement with the flushed surface, the subjective feeling of warmth and the rapid and strong pulse. Immersion of the left hand in cold water (which was very disagreeable to the patient) caused a reduction of the flow in the right hand from 14.18 grammes to 7.82 grammes per 100 c.c. per minute, and the reduction persisted during the period of immersion ( $5\frac{1}{2}$  minutes).

So far as we have had opportunity to observe, an abnormally high arterial pressure is not associated with a correspondingly great blood flow. On the contrary, the high pressure is rather to be regarded as an index of the abnormally great resistance encountered by the moving blood. So long as the resistance remains high, even a moderate flow can be maintained only when the arterial pressure is above normal. A fall of arterial pressure, induced by diminution of the peripheral resistance, may very well be accompanied by an increased flow.

Thus, in a man, 53 years old, with thoracic aneurism the arterial blood pressure was 205 mm. of mercury at the time of examination. The flow in the right hand was 7.51 grammes, in the left 6.96 grammes per 100 c.c. per minute (with calorimeter temperatures of  $28.8^{\circ}$  and  $28.9^{\circ}$  respectively, and room temperature  $20.8^{\circ}$ ). Twenty-six days later the blood pressure was 210 mm., the flow 10.23 grammes in the right hand and 9.47 grammes in the left (with calorimeter temperatures of  $31.07^{\circ}$  and  $30.82^{\circ}$  respectively, and room temperature  $22.2^{\circ}$ ). In another man, 59 years old, who almost died in the hospital two years before this examination (with myocarditis), but is now much better, a blood pressure of 210 mm. was accompanied by a blood flow of only 6.82 grammes in the right hand and 6.58 grammes in the left (with calorimeter temperatures of  $29.85^{\circ}$  and  $29.75^{\circ}$  respectively, and room temperature  $21.9^{\circ}$ ). These rates are not at all above the flows encountered in subjects with ordinary arterial blood pressures.

*April 25, 1911.*



Fig. 1. Photograph of calorimeter and stand. The felt collar is shown resting on the top. When in position around the wrist it closes the orifice of the calorimeter.





Fig. 2. Photograph showing patient with hands in calorimeters. In an actual experiment the coat sleeves would come down closer to the felt collars, and the patient's feet, instead of resting on one of the rungs of the chair, would be more comfortably supported on a footstool. The observer sits on a low seat behind the patient.

## The Present Day Gynecological Problems of Interest to the General Physician.

By BARTON COOKE HIRST, M. D., Philadelphia, Pa.

These problems, I should say, are the prevention and cure of pelvic infection, the preventive and curative treatment of the two conditions, which are, at the same time, the commonest diseases of women, and the commonest pathological consequences of childbearing—lacerations of the birth canal and retro-displacement of the uterus; the early diagnosis of cancer of the uterus; the treatment of the two toxæmias of pregnancy; the treatment of a moderate sized uterine fibromyoma without serious symptoms; the urgency of the indication for operative treatment in ectopic gestation; the treatment of obstructed labors and placenta prævia; the treatment and differential diagnosis of pyelitis and the relief of sterility.

It will be noticed that I mean by "Gynecology" all the pathological phenomena peculiar to women; a correct use of the word in accordance with the modern conception of the specialist, who, to deserve the title, Gynecologist, must know the whole, and not a part, of his subject.

An audience even as indulgent as the present, might be justly alarmed at the prospect of all these problems being discussed in detail.

It is the object of this communication, somewhat audacious, simply to hint at means by which the general physician might obtain better results in the treatment of affections peculiar to women, than are the rule at present. In assuming this task in all humility, I would disclaim anything more than an attempt at certain suggestions, based on experience in consulting practice, on statistics, and on the observation and study of what *may* be accomplished under the most favorable conditions, and what *is* actually attained in general practice by men who can give only a part of their attention to these questions among the innumerable demands upon their knowledge and resources.

There are too many lives lost in this aseptic era, from puerperal infection. It will be conceded, I think, that at present about one in five hundred confined, die of infection, counting the deaths from abortion. In that case, between four and five thousand women lose their lives in this country every year from a

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preventable disease, a lamentable waste of life almost justifying Bernard Shaw's caustic remark, if anything said by that volatile individual is to be taken seriously, that every disease is a misdemeanor to which a physician is an accessory and that every death should be investigated by the authorities as a probable murder for which a physician may be responsible.

It seems to me that the discouraging frequency of pelvic infection after labor is due mainly to the inadequate equipment of the physician and imperfection of technique. A well equipped obstetric bag with sterile contents, including gloves, shaving the patient, cleansing the vulva before an examination, and scrupulous cleanliness in the after management, if the invariable custom of every practitioner of medicine, would unquestionably reduce the morbidity and mortality of childbearing. If an assembly of general physicians were canvassed, would it be found that every one possessed in his office, an equipment for sterilization, however simple and inexpensive, to keep his obstetric bag replenished with sterile materials? And yet this is one of the essentials in aseptic work. Moreover, we should all do our duty better than we have done it, in insisting upon the more stringent regulation and the more thorough instruction of midwives. I should really say the instruction of midwives, for at present they get none at all. Our laws on this subject, as I am familiar with them in my community, are worthy of darkest Africa; although about half of our childbearing women in the large cities at least, are at the mercy of an ignorance and incapacity that would not be tolerated in any other calling, responsible for life and death. As to the other fertile source of pelvic infection, gonorrhoea, we can only do our part in the gradual but steady uplift and education that has substituted modern fiction for Rabelais and the hundred novel tales of Louis XI and has converted the universal licentiousness of the middle ages to the comparatively decent living of today. But while awaiting the millenium when the counsel of perfection of continence till marriage shall prevail, information to these men who really need it, about the successful preventive treatment of venereal infection, as exemplified in the practice of the army and navy surgeons, may save many an innocent woman from one of life's worst tragedies.

There are two points in the treatment of puerperal infection, that seem to me not to be appreciated as keenly by the profession as they might be: The value of antistreptococcic serum

and the possibilities of the operative treatment of pelvic infection. In the last twenty years I have seen a mortality of 100% in such conditions as suppurative metritis and streptococcic necrosis of the uterus, changed to a recovery rate of 90% in my clinic at the University Hospital; and witness every year, the life-saving quality of the serum treatment of infection in a considerable number of cases.

Lacerations of the birth canal can never be successfully dealt with until the profession in general realizes that immediate repair will not give uniformly satisfactory results. It is impossible to make an accurate diagnosis immediately after labor and it is equally impossible to secure invariable healing in bruised, distorted and edematous tissues. Besides, the repair of the cervix, short of five days after childbirth, entails too much risk of infection to be adopted as a routine measure. Consequently, it may be asserted incontrovertibly, that only by the intermediate repair of the birth canal at least five days after delivery, can all the injuries be successfully repaired, and their consequences, rectocele, cystocele and prolapse of the uterus, be prevented. If this rule of practice were universally observed, hundreds of thousands of women, now incapacitated by the injuries of parturition, would be healthy, useful members of society instead of miserable wrecks, incompetent as wives, mothers or housekeepers.

About one-fifth of all the women who consult physicians on account of a disease peculiar to their sex, do so because of retrodisplacement of the uterus, in the vast majority of cases, the result of childbearing. This common cause of female ailment is also amenable to proper management and as a chronic affection, could be banished from medical practice. Every woman after confinement, should be subjected to two examinations to determine the position of the uterus; one at the end of three weeks, when she begins to walk, and the other at the end of the puerperium, six weeks after delivery. If a displacement is discovered at the first examination, it can be cured in a certain proportion of cases, by the knee-chest position, twice a day. If it persists at the end of six weeks, a pessary with Swedish exercises and massage for a couple of months will cure an additional number. If, in spite of this treatment, the uterus does not stay in position without support, the operative treatment is in order, with a permanent cure in prospect before the nervous



strength is impaired or local congestive changes of a permanent character have time to develop.

Despite the continual harping on the sinister significance of genital hemorrhage, especially in the middle aged, the specialist must still contend with the indifference of the patient and sometimes with the carelessness of the attending physician, in uterine carcinoma. Progress is observable, but there is not one of us specialists who is not constantly in charge of inoperable cases, usually in poor and ignorant people. In twenty years service in the Philadelphia Hospital, the city almshouse, I saw only one operable case, although a ward assigned to these unfortunate women was usually full.

In the treatment of the two toxæmias of pregnancy there is room for as great an improvement as in any of the diseases under discussion. Let me call your attention for a moment to the seriousness of the situation at present. Eclampsia, the ultimate expression of the toxæmia of late pregnancy, is acknowledged to occur once in 300 births. If there are 90,000,000 people in this country, and our birth rate is 25 per 1000, there are annually 2,250,000 labors at term. There must be, therefore, 7,500 cases of eclampsia. Now the death rate of this disease is admitted to be 33% in general practice. Consequently, 2,500 women perish every year from this cause. But there is no necessity for this appalling loss of life. The specialist in a well managed hospital, if his treatment is rational and skillful, does not lose 10% of his cases although he gets the worst kind in an advanced stage. If he could see all his cases early and could begin the appropriate treatment at once, he would have no difficulty in keeping the mortality in the neighborhood of 5%. This means that six times as many women die of eclampsia every year in the United States as should legitimately do so, or in other words, that more than 2,000 women in the prime of life, usually just entering upon wifehood and motherhood, for most of them are primiparae, are needlessly consigned to an untimely end.

If all these unfortunate victims were immolated at one time in a public manner every year, the whole world would ring with a horrified cry that such a holocaust must cease.

There are several reasons for the unnecessary mortality of eclampsia. One is the failure to detect the pre-eclamptic symptoms of toxæmia by urinary examinations and by an observation

of the blood pressure, especially the latter, which is invariably reliable. It is easier and safer to prevent eclampsia than to cure it. Another is the widespread fallacy that the first step in the treatment of the pregnant or parturient woman is the immediate evacuation of the uterus. Another is the insufficient energy and precision of treatment in a private house, especially in the employment of diaphoresis, which is the best method of elimination, but which can be utilized to the fullest extent only by means of a sweat cabinet. Such an apparatus, however, is procurable by any general physician in a cheap, convenient and portable form.

The toxæmia of early pregnancy in a dangerous form, is comparatively rare. My personal experience would indicate that eclampsia is twenty times more frequent than true pernicious vomiting. In its treatment we are all, specialist and general practitioner alike, in a quandary. There is no way at present to manage the worst of these cases except by the sacrifice of the embryo. But I think I see a way by which we may obtain the mastery of this hitherto intractable disease. I am at present trying the injection of blood serum from a woman who had spontaneously recovered from the exaggerated vomiting of pregnancy and whose blood must be rich in syncytiolysin. If the theory is correct, and I believe it is, that the syncytium is the source of the toxins of early gestational toxæmia, just as the foetal body is the source of the toxins of late toxæmia, then we may find a specific antidote for pernicious vomiting in the blood of pregnant women who have spontaneously recovered from the ordinary nausea and vomiting of pregnancy.

It must puzzle many a conscientious physician to decide what advice he should give a patient with a moderate sized fibromyoma of the uterus not causing pressure symptoms or excessive hemorrhage. All my contemporaries remember the time when no one would have thought of advising operation in such a case. At present, however, there is no such feeling of security in regard to these tumors and there is a disposition on the part of some enthusiasts to discard the older view entirely and to regard all fibroids as almost malignant. From an observation stretching over twenty-five years, of a number of patients not operated upon and from more recent experience in the operative treatment of increasing numbers of these growths, if I were compelled to become an uncompromising adherent of one practice or the



other, I should choose the routine operative treatment rather than the *laissez faire* policy. But there is no necessity for a rigid adherence to either plan. In the kind of case under discussion, an uncomplicated fibroid of moderate size without pressure symptoms or excessive hemorrhage, there is always ample time, years in fact, to observe the rate of growth, to watch for untoward symptoms, to decide whether the neoplasm is a serious detriment to the patient or not. This, I think, is the right course when it is practicable.

We have all read in recent years, certain statements in regard to ectopic gestation that are very disturbing to a person like myself who has actually seen too many instances which belie them. I refer to the assertion that a woman is unlikely to bleed to death from a tubal pregnancy; that the hemorrhage will spontaneously cease and that reaction may be expected. This is true of some cases, but not of all. It is impossible to predict the course of any case. It seems therefore, to me, with a vivid recollection of cases that have bled to death before I could reach them, the height of folly, to use no harsher term, to wait for reaction which may never come, and to be convinced that it cannot be expected only when the patient is moribund and the operation, which if done in time, would have saved a life, is obviously futile. I, for one, am unalterably opposed to delay in the operative treatment of ectopic gestation, having seen a number of women bleed to death before I could get to them.

In no other branch of medicine is there the same evidence of lack of training and knowledge, as is occasionally seen in obstetric practice in the failure to recognize the fact that labor is insuperably obstructed, to gauge the character and degree of obstruction and to apply the appropriation treatment. Version is performed when the head cannot be extracted first or last; the extremities and the head of the foetus are pulled off, the uterus is ruptured; and the intestines are torn from the mesentery; forceps are applied and used with undue violence without avail in impossible positions and presentations and in hydrocephalus; the instrument is applied to a fibroid tumor instead of the foetal head; or the patient is allowed to remain so long without any attempt to relieve her that she dies of acute dilatation of the heart. I regret to think that I have seen examples of all these mistakes, whereas the recollection of a few simple clinical rules would have avoided them. A delayed labor may be an ob-

structed one: The commonest causes of obstruction are contracted pelvis, overgrowth of the foetus, malpositions and hydrocephalus; a deep examination, if necessary, by the whole hand in the vagina, with the patient in the dorsal gynecological position, enables anyone to determine the relative size of the foetus and pelvis, to detect hydrocephalus and malpositions or the presence of a neoplasm. Knowing the actual conditions in any case, the proper treatment may easily be selected.

Placenta praevia is one of the problems of practice to which the profession must turn its earnest attention.

Again to revert to statistics, there are nearly two thousand cases of this condition annually in the United States. The statistics of the German Empire show that the death rate of placenta praevia in general practice is 20%. We cannot claim better results in this country, if indeed ours are as good. In well managed clinics, and in the hands of specialists, the mortality can be kept near 1%. Consequently the death rate from this cause is many times greater than it should be. To improve this situation is difficult. The general physician sees only four or five cases in a life time. He cannot obtain the skill that comes of practice in their management. The difficulty is increased by the fact that no one plan of treatment can be invariably relied upon and there are cases which tax the skill and resources of the most experienced specialist. For example, I was obliged, a few weeks ago, to do a vein to vein transfusion before anything else could be attempted, and then to perform a Caesarean section to avoid further blood loss, and in the past three months, to treat cases by the Wigand method, by version and by Caesarean section. But here too, there are certain rules of practice which might be remembered with advantage. A vaginal tampon, if it is big and tight enough, will temporarily check the hemorrhage till other measures can be decided upon; version followed by a slow extraction of the foetus is applicable to the majority of cases; Caesarean section gives the best results to mother and child if there are any special difficulties or complications in the case.

The frequency of colon bacillus and gonococcic infection of the urinary tract in women, especially pregnant women, has forced itself of late years on the attention of the specialist so emphatically that it must be a common occurrence in general practice, and judging from the tardiness of our recognition of the importance of this disease, it would seem probable that it is



not rarely overlooked by the general practitioner. Moreover as cystoscopy is necessary for a positive diagnosis, and as the use of the cystoscope and catheterizing the ureters is not yet an accomplishment of every specialist, not to mention the general physician, there is an additional reason why pyelitis may be now frequently overlooked or mistaken for appendicitis than ought to be the case. There is an opportunity here for a rapid advance. Cystoscopy must be in the immediate future as much a routine method of precision with the general physician as auscultation or thermometry. The instruments for the purpose are now so perfected, the method is so easy to learn that there is no excuse for its continued neglect. The diagnosis being established the treatment by boric acid for irrigation of the bladder, instillation of emulsion of iodid of silver and the internal administration of urinary antiseptics like helmitol and salol will cure a disease that has often in the past baffled our diagnostic and therapeutic efforts.

While the reduction in the birth rate noticed in all civilized countries, but especially in France and America, is voluntary and depends upon sociological and other considerations with which it is useless at present to contend, there is a certain percentage of involuntary and most unwelcome sterility. The stress and strain of modern life, has, as one of its results, a weakened nervous system and an associated lack of sexual development with which we are all familiar, and with which our successors in the next generation will be still more familiar. Everyone is aware of the good results obtained by mechanical dilatation of a stenosed and angulated cervix in these cases especially since this dilatation has been more efficiently and permanently accomplished with the metranoicter or the uterine drain. But there is a possibility of developing the infantile uterus by electrical stimulation, which, I think, is not appreciated as generally as it might be.

In conclusion, gentlemen, I feel apologetic in offering advice to the general physician, whose training is broader, whose judgment is often better than that of the specialist, who in readiness of resource, in adaptability to all the varied demands of medical practice is necessarily our superior. We stand to him in the relation of a public servant. If we are able to help him by advice or suggestion, it is only because a concentration of attention on one department of medicine, gives us the dubious advantage of knowing something of that one subject at the expense of a total ignorance of all the others.

## Notes on Some Common Fractures and on the Results of Treatment.

By FREDERIC J. COTTON, M. D., Boston, Mass.

My subject this evening is not new and I shall present little that is new, nothing especially striking, but shall rather endeavor to discuss certain aspects of the fractures commonly met with, and to discuss them from the point of view of the practitioner, the man who must usually care for them.

The fractures chosen for consideration are those of wrist, elbow, shoulder, leg and ankle, chosen because they most commonly make trouble in treatment and most commonly give disappointing results.

Before taking up the detailed lesions it may be well to define our point of view in regard to fracture treatment in general. The last decade has brought many changes in point of view and in treatment and many of these changes have come so gradually that one must look back deliberately in order to appreciate them.

The x-ray has taught us much about fractures, and (quite as important) it has stimulated a fresh interest in traumatic work both operative and non-operative, has made it possible to work with more precision, and, perhaps best of all, has enabled us to "check" our results much more accurately.

Fracture repositions that would have passed without comment a few years ago now need excuse even to the laity and to all but some truly conservative members of our own profession. Now that intelligent operative work on fractures is possible and reasonably safe, our explanation of "inevitably" bad results loses some of its force. It is "up to us" either to do non-operative work of high grade or to resort to operation (unless there are contraindications) rather than calmly to accept some of the results that even ten years ago were regarded as adequate surgery.

This does not mean that we are to expect perfect restoration of outline as shown by the x-ray; that would be possible only if we operated on everything. Absolute accuracy of reposition is impossible, and perhaps hardly worth much striving for. What we want is, first, the avoidance of obvious deformity,



second (and much more important), the attainment of good *functional* results.

The x-ray in the individual case is very usually unnecessary for diagnosis, unnecessary for the treatment at first, but very essential indeed in order that we may check our results, may inform ourselves whether fracture-reductions that seem to us good at the time are really satisfactory or not, whether we may wisely "stand pat" on what we have done, or have another try. This, to my mind, is the important function of the x-ray from the practitioner's point of view, and for years past I have preached to my colleagues and to my students the importance of the x-ray taken *after reduction* and within two weeks from the injury. I repeat that an x-ray taken within the fortnight will put us in a position to avoid nearly all the troubles that notoriously attend the unfortunate who treats fracture cases.

Nearly all the troublesome cases I see (and the troublesome cases are the ones I see as a rule) have been troublesome *not* because of lack of skill in diagnosis, but because of one of three things: (1) The results have not been checked by the x-ray, and poor position has been called good position until it is too late for any procedures short of operation; or (2) associated lesions, particularly nerve-lesions, have been overlooked at first and when they have been found they have been attributed by the sufferer to the treatment rather than to the original trauma that caused them; or (3) the doctor has forgotten that functional usefulness is the main aim and has cared for position only.

This brings us to a very important point. Fifteen years ago when I was a house-officer we kept fractures "up" in absolute fixation until they were solid, and then "limbered them up." This seemed logical, but the trouble was that they did not limber up, but perversely remained stiff, and we had many cases of neat union with the neighboring joints stiff and the limb consequently useless or nearly so. All this seems to have resulted from a brilliant but utterly misinterpreted monograph (published in 1886) on the harmlessness of joint fixation. It is true that a normal joint, or even a tuberculous joint, loses little mobility when held rigid even for months, but this has nothing to do with the behavior of joints in traumatic cases. Yet, following the orthopedic lead, the general surgeons blindly fixed joints and let them stiffen.

Everyone who has had a large experience with cases of trauma knows, if he keeps his eyes open at all, that stiffening of joints occurs very regularly not only in joints directly damaged but also in those in the neighborhood of fractures, in pretty accurate proportion to their nearness to the break. I do not pretend to explain this fact but merely state it, and everyone can recall pertinent instances.

Now not only do the joints stiffen, but, except in children, they very usually fail to regain their motion to anything like normal range. Massage helps little, passive motion is as likely to do harm as good, and active motion and use are only partly successful in restoring function. There is only one way to cure the stiffness, and that (if you will pardon the bull) is not to let it happen! Stiffening does not occur if active motion is allowed from the start.

Massage is of some use, and the intelligent masseur can be of great use in minimizing soreness, and in encouraging active motion while he guards against displacement, but it is active motion rather than massage that is important in the treatment of fractures.

This principle has been recognized only very slowly and unevenly. Few men today are so backward as to allow the fingers to stiffen in splints in the treatment of a Colles' fracture, but I am sorry to say that ankle-fractures even today are apt to come out of plaster with a stiffening of the joints that is a very important item in the final disability. The importance of this item is not lessened by the fact that this stiffening is avoidable.

In conclusion of the general preamble let me suggest that—

1. The results of all fracture-reductions should be tested within a fortnight with the x-ray to see if anything more need be done.

2. Lesions of nerves should always be sought for *before* fracture reduction is attempted.

3. Active motion in the joints near a fracture should be instituted (with or without massage) as early as may be, and continued throughout the treatment.

### Fractures of the Wrist.

Fractures of the wrist are nearly all Colles' fractures. Of course we must differentiate fractures of the carpal scaphoid



and dislocation of the various carpal bones, but these are *below* the wrist joint, and—broadly speaking—fractures close *above* the carpus are Colles' fractures. They are pretty constant in type: in some the displacement is purely backward, in others predominantly outward: that is the hand is rocked over to the radial side more than it is displaced backward. In a few cases (as not uncommonly in the chauffeur's fracture from backfiring) the displacement is slight or none.

In all cases save those without displacement of fragments there is also a dislocation of the ulna forward, with much tearing of ligaments. In its effect on functional results this lesion is more important than the radial fracture, and should receive more attention than it sometimes does.

In fresh cases there is never any serious difficulty in reducing the *fracture*—primary anesthesia is a matter not of necessity but of convenience and of humanity.

The reduction becomes a matter of precision in making and recognizing accurate replacement. It does not seem to me important just what method is used: unnecessary force must, however, be avoided.

When the radial fragments are once properly replaced they do not tend to slip out again.

Next, the ulna must be cared for: I always carry out the circumduction movement (introduced by Moore of Rochester) to free the broken styloid base from any entanglements, and then shove the ulna backward into place. Then we must test the position of the radius by touch, and if it has not changed we are ready for splints.

I have little use for special "store-splints" in these cases. In my own cases I use splints like these, previously fitted to the *other* wrist, reversed, and padded (Fig. 1). There are only three things that the splints have to do;—to protect the radial fragment from trauma or muscle contraction that might displace it (there is nothing to be *held* in place); to keep the ulna back where it belongs; and to be decently comfortable. This is accomplished by pads here shown, arranged to give snug pressure, but not pressure enough to cause swelling of the fingers. Sometimes it is wise to cut out part of the back of the splint to avoid pressure over the prominent bases of the second and third metacarpal bones.

Now as to the ulna, we should make sure that the splint,

whatever its type, shall not in the least interfere with our shoving the ulnar head backward, and holding it there; we can not shove it too far. In this apparatus the splint is cut out at the back as you see, and the pad (preferably of felt) is used for pressure. In holding the radial fracture we have only to guard against accidental displacements; in holding the ulna in place it is a *constant tendency to displacement* that we must combat, and this pad over the front of the ulna should be the firmest and most snugly applied of all.

Please note that this splint does not adduct the hand—it has nothing in common with the “Nélaton pistol-splint” or its heirs.

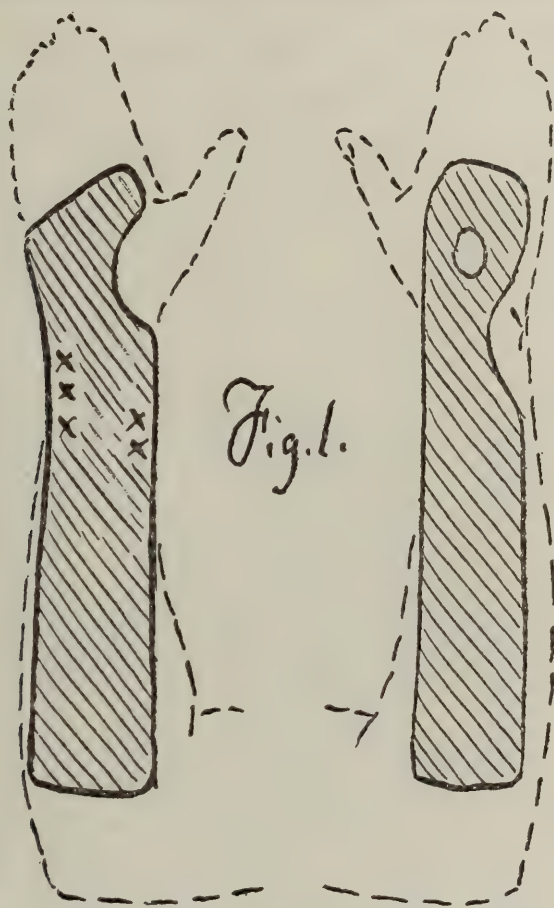


Fig. 1. Splints for Colles' fracture. The crosses mark the points for maximum padding. In the posterior splint, note how it is cut away to clear the ulnar head. The central perforation (occasionally necessary to avoid pressure) is also shown.

I have found such adduction necessary not more than twice or three times—only in cases of extreme comminution of the radius—in a practically negligible percentage of cases.

Please note also that these splints do not confine the thumb and fingers at all; this I believe to be most important.



With exceptions so rare that we need not consider them, every patient with a Colles' fracture is to be allowed and encouraged to move the thumb and fingers from the start—bullied, if need be, into moving them not later than the third day.

In many cases one splint (preferably the posterior) can be removed in a week or ten days; never need this be postponed beyond two weeks.

In most of my own cases *all* splints are off in two weeks.

After the splints are off, all we have to care for is to maintain the position of the ulna.

For this an anterior pad and a circular adhesive strap are sufficient.

They should be worn until ligament repair is practically complete—about a month from the time of the injury.

If this routine is carried out we have no stiffness (except rarely in rheumatic patients) and we find consistently serviceable wrists. The only disability to be expected in a properly treated Colles' fracture is a weakness (with some pain) about the ulnar side of the wrist. This is usually temporary.

Imperfect reposition of the radial fragments is esthetically undesirable and is usually avoidable, but any reasonable imperfection in reduction is really of no consequence at all if the ulnar dislocation has been successfully handled.

### Elbow Fractures.

Elbow fractures, so far as the humerus is concerned, are sharply divisible into two classes, those of children and those of adults.

The less important class, that of adult fractures, may be considered first, for their consideration may be made very brief.

We meet with the supracondylar type, nearly always with backward displacement of a directly palpable fragment that moves in abnormal range with the forearm-bones, laterally as well as fore and aft.

We find T-fractures, recognizable by broadening of the elbow and by separate mobility of the condyles, together with the signs of the supracondylar break.

We find fractures of the outer or of the inner condyle alone, recognizable by the movable displaced condyle on one or the other side of a tolerably preserved joint-mechanism.

The principles of our procedure here are very simple though their application is often very difficult. We have in the first place to reduce the fragments, mainly by traction and direct manipulation.

Once the fragments are reduced as well as we can get them in place our problem is one of maintaining position. I know of no rule as to apparatus—perhaps the internal right-angle tin splint of the Smith-Bolles type is most commonly useful; some few fractures are best held at an obtuse angle, some in acute flexion. The best position is that in which the fragments are most firmly held, and the best splint the one which best secures this position. There can be no rule beyond this.

The splint is left alone for a time—a time utilized in part for taking an x-ray. Then, as early as may be, active motion is allowed, once a day at least, the surgeon's hand holding the fragments firm and supporting the forearm. The motion is not passive but active, the patient using his own muscles.

Such treatment is begun early.

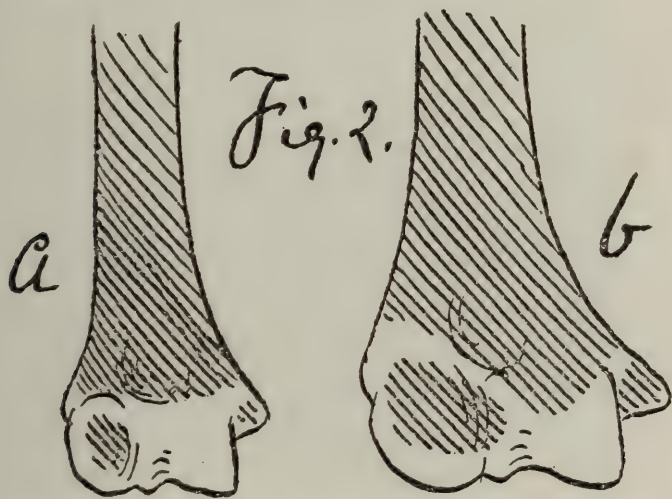


Fig. 2. The proportion of bone and cartilage in the child's elbow, (a) at about 5 years, and (b) at about 12 years.

I have had admirable results from beginning motion in a week with fractures of one condyle, within two weeks in supracondylar and T fractures.

We may not let these cases stiffen up—such stiff elbows in the adult never limber up; with proper care the active motion does only good, no harm.

Fractures of the humerus at the elbow as they occur in children are an entirely different proposition. In fact they are mostly not true fractures at all but more or less complicated



epiphyseal separations, perfectly constant to a few types, and differing in treatment and results according to type.

Before going farther let me illustrate the epiphyseal anatomy of the lower end of the humerus in childhood (Fig. 2).

Up to about four years of age the whole lower end of the humerus, including both condyles, is a single mass of cartilage. Then there appears a line of separation dividing off the epiphysis of the external condyle. The ossification center in this (already present since infancy) grows steadily larger while growth of the inner condyle proceeds by growth of the shaft downward. Clinically speaking there is never any epiphysis of the inner condyle. The internal *epicondyle* shows ossification, however, at about five years and by the tenth year has become an entirely separate epiphysis.

The lesions we meet with are: Supracondylar fracture, total epiphyseal separation (only under four or five years of age), separation of the external condylar epiphysis, separation of the epiphysis of the internal epicondyle,—and that is all!

In the case of the supracondylar breaks or epiphyseal separations (not distinguishable save with the x-ray) we have lesions exactly comparable to those of adults, to be reduced and maintained in the same way with the exception of one point. In children the break above the joint allows the shoulder rotators to twist the shaft of the bone outward and we have the condition illustrated in Fig. 3, almost constant in these cases, though curiously enough not often met in similar lesions in the adult. The moral of this picture is that all reduction manoeuvres should be carried out with the forearm and the attached fragment rotated out to correspond with the rotation of the shaft, a procedure strongly to be recommended. Once well reduced the arm is held firm with the usual right-angled splint. Acute flexion is not desirable in my opinion for this class of cases.

The separations of the external condyle require very careful reduction by direct manipulation and pressure, the forearm being adducted to give a space into which the fragment may be reduced. After reduction we must test whether the right-angled position or that of acute flexion best holds the fragments. Very often acute flexion (pulling taut the triceps tendon-expansion at the sides of the joint and over the fragment) gives the ideal fixation.

Separation of the internal epicondyle is always accom-

panied by downward displacement of the fragment, displacement due to the pull of the forearm muscles which have their origin on this epicondyle. This pull is minimized in acute flexion, and acute flexion is always the position of choice in this lesion. With the elbow in acute flexion, pads held with straps of adhesive plaster secure the best attainable position of the fragment.

So we have the various lesions reduced and held; what of the subsequent treatment?

First: Passive motion and massage in children only stir up joint-reaction, pain, and stiffness: this you must take from me, for there is no time to go into the long series of cases that convinced me.

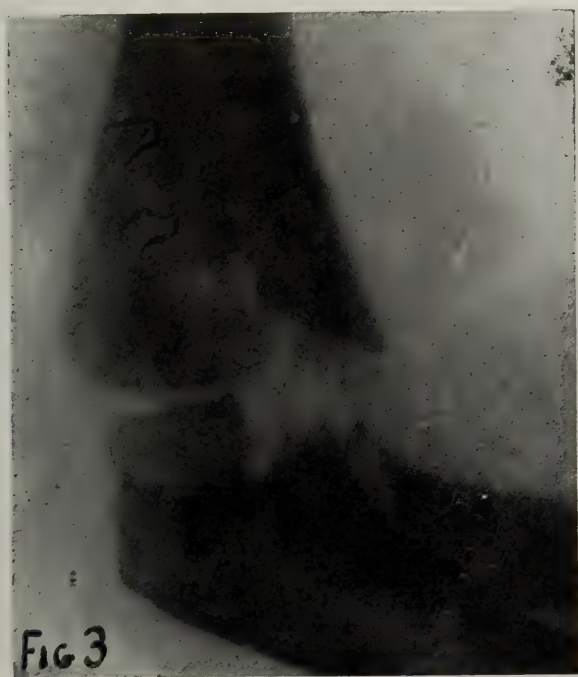


Fig. 3. Supracondylar fracture of the humerus in a child. The plate shows the "spur" formed by the rotated internal condylar edge of the upper fragment that so often interferes permanently with proper flexion of the arm.

Second: Active motion, without danger of slipping of fragments, is hard to control in children.

Third: Children with these elbow lesions do not show any permanent stiffening (except that conditioned by malposition of bones) so that we need not worry about delay in reestablishing motion.

Fourth: Separations of the external condyle in children show a curiously large proportion of instances of delayed union



or even permanent non-union, and separations of the internal epicondyle result always in fibrous, never in bony, union.

Consequently our problem of aftertreatment in children differs very sharply from that presented by like lesions in adults: for there is no call for early mobilization and our concern is purely focussed, for the time, on maintenance of the accomplished reduction.

Proper consolidation is complete within three to five weeks, according to the age of the child, and then motion (active, not passive) is begun.

Slowly but progressively motion returns, and after about six or eight months we have restoration of all the joint-motion and use that the restored bone-outlines will allow.

According to the lesion we face the chance of definite imperfect results, however, due to defective reduction.

If the lesion was above the condyles we may have some loss of flexion due to the spur seen in Fig. 3. At this stage this is remediable only by operation.

If we have not reduced accurately in the supracondylar lesions we may have the "gun-stock" deformity, disfiguring to some extent though rarely interfering with function. The deformity is at this stage only to be corrected by osteotomy.

If the lesion was one of the external condyle there are two characteristic troubles to be looked for. We may have non-union calling for an operative interference that gives good end-results, or more commonly we may have a spur due to periosteal overgrowth. Such overgrowth is a result of rotation of the fragment outward, but, unfortunately, no one has yet discovered any way (short of open operation) to correct this rotation. It leads to no disability but is unsightly, and we should always remember in treating cases presenting this lesion to mention the possibility of this deformity *before* it appears. The spur is readily removable with the chisel but in no other way.

Fractures of the humerus at the elbow in children, then, present the following points of interest:

1. They follow epiphyseal lines in the main.
2. They conform to a definite classification.
3. Each lesion has its characteristic (though not invariable) deformity.

4. Primary stiffening is not serious, as it is in the adult, but yields fully with time.

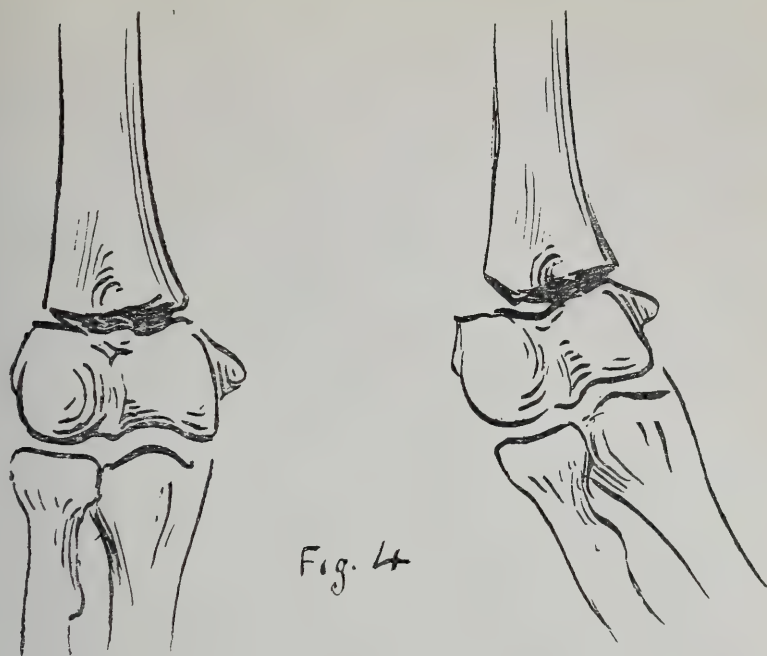


Fig. 4

Fig. 4. The mechanism of the "gunstock deformity." A supracondylar fracture shown at the left may, and commonly does, suffer a moderate displacement of fragments (see cut at right) that determines a serious deviation of the axis of the arm.

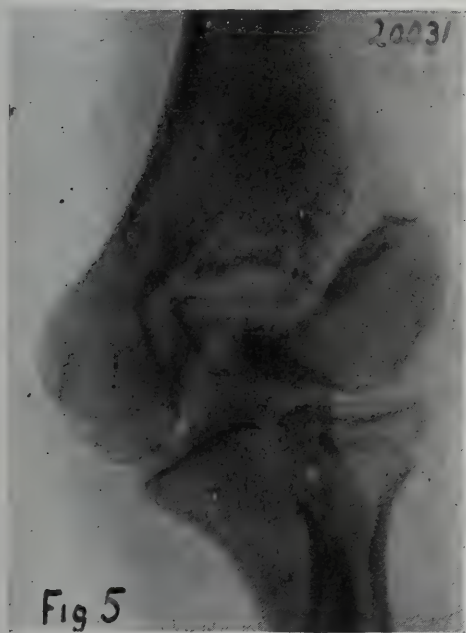


Fig 5



Fig 6

Fig. 5. Separation of the external condylar epiphysis—*non-union*. Untreated injury in girl aged 12, of five years' standing. Later operated on with much improvement of deformity and function and with solid union.

Fig. 6. External condylar epiphysis separated, displaced and rotated outward with much local deformity. Delayed and fibrous union. Case operated on later (replacement of epiphysis, held by temporary spiking) with excellent result.



5. All the resulting disabilities are remediable by operative methods if need be.

Our treatment of these fractures in children confines itself to reposition, fixation, allowance of use after a month; and in the less fortunate cases operative measures are relied on for the correction of trouble: proper handling from the first will leave few cases to be operated on later.

Passive motion and massage are not used, active motion is not encouraged for about four weeks.

#### Shoulder Fractures.

These are fractures of the adult, in the rule, resulting from

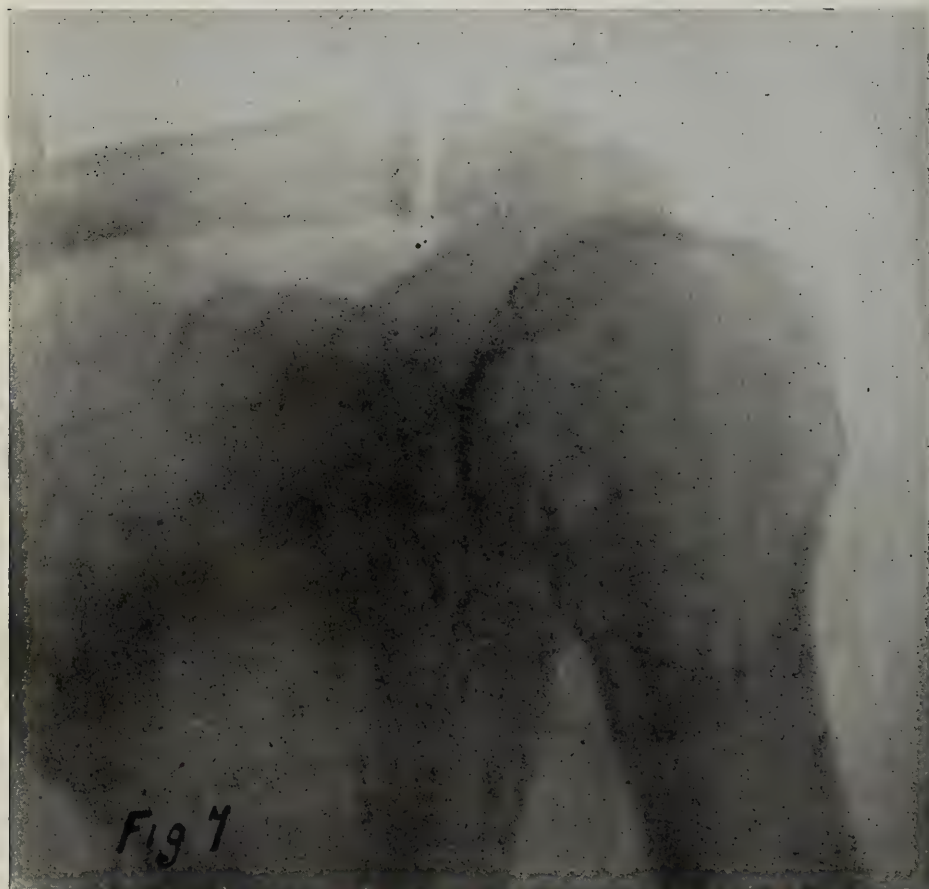


Fig. 7. Impacted fracture of anatomical neck of humerus.

heavy falls on the shoulder. Commonly either the surgical or the anatomical neck of the humerus gives way. In younger persons we have epiphyseal separation. Surgically considered an epiphyseal separation is a fracture of the surgical neck, so we have only two classes to consider—namely, lesions of the anatomical and of the surgical neck.

Fractures of the anatomical neck are not common. They occur mainly in the aged as a result of falls directly on the shoulder. As a rule they are impacted and of the type shown in the accompanying plate. A fracture of this type cannot be improved by manipulation, and had best be let alone and mobilized early. In the case shown in the picture there was an associated temporary traumatic paralysis of the deltoid, and active motion had to be supplemented by passive motion until the muscle recovered.

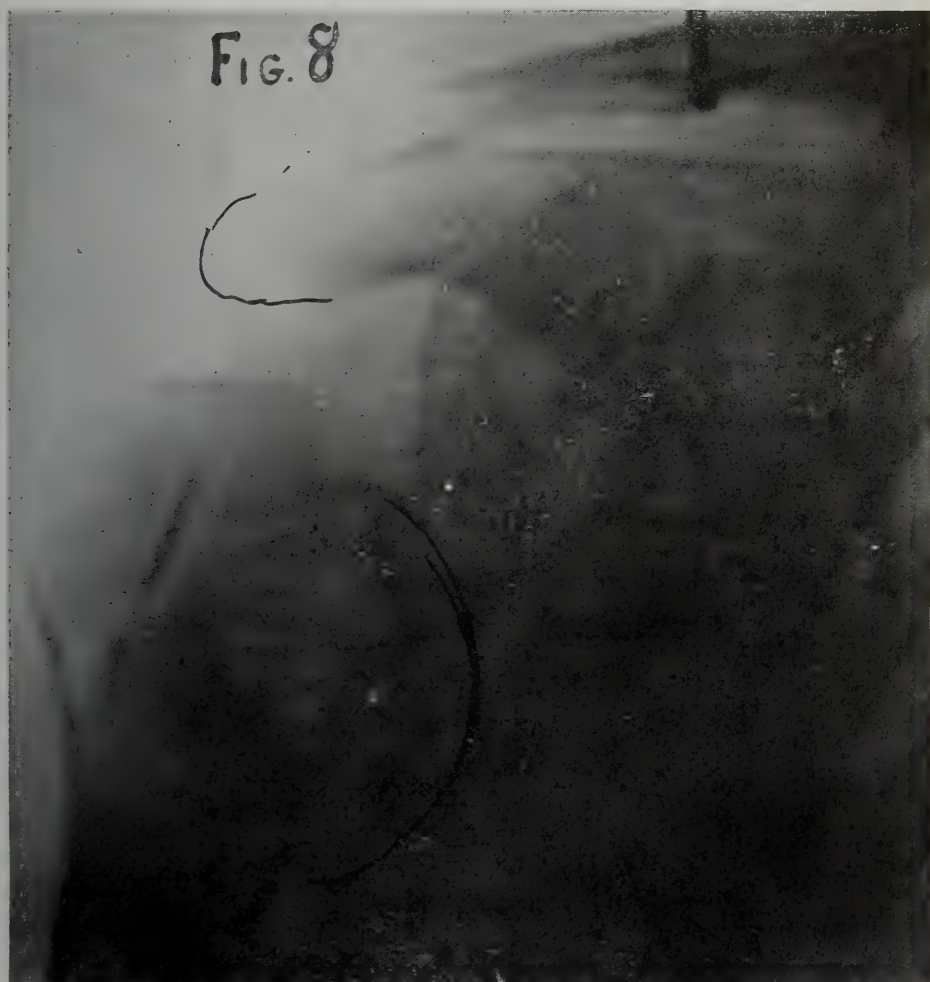


Fig. 8. Fracture of anatomical neck, without impaction, fragment displaced down and back; shaft of humerus subluxated downward. Fragment "jumped" back into place under ether. Almost perfect functional result.

Most of these cases do very well, though absolute recovery of the full range of motion is not the rule.

Here and there we meet a case of fracture of the anatomical neck without impaction. The accompanying figure shows such



a case with the head split off and luxated down and backward to the limit of the capsular space. Under ether the fragment was shoved into a better position. In this case guarded active motion was instituted early; the result proved to be admirable.

If the fragment including the head is driven outside the joint and cannot be reduced, the only resource is operation. I have removed the head in four such cases with excellent (though not perfect) results. As a rule cases with marked displacement of the fractured head call for operation because of pressure of the head on vessels and nerves, irrespective of any improved joint function to be attained, just in the way that unreduced dislocations call for operation.

As to the possibility of union of the separated articular head with the shaft I can only adduce the case last shown (Fig. 8). Certainly failure of union is not constant with anatomical neck fractures.

I believe we could get union oftener if we tried harder.

Fractures of the surgical neck (or epiphyseal separation) present an entirely different problem—one not of delayed or doubtful union but of deformity and consequent limitation of mobility at the joint.

Almost always in these cases the lower fragment (the humeral shaft) is pulled forward and inward by the powerful pectoralis major, so that the upper end of the shaft lies up and forward near the coracoid.

Just because a powerful muscle pulls the fragment, the exact reduction of the deformity is often almost impossible. If we let it stay the overlap and thickening limit most of the useful shoulder motions.

Sometimes reasonably accurate reduction is possible by downward traction on the arm and direct manipulation of the fragments. If this succeeds, well and good. I would not be too fussy about the minor details of adjustment!

But if this does not work out well, if we still have an overlap of fragments, I rarely have hesitated to operate. These cases occur, in the main, in youths or young adults of good resistance.

Unless something is done they will remain unable to lift the arm forward (or outward) to anything like the serviceable limit.

If we cut down with the Hueter incision a good exposure is obtained and the fragments may be levered into place. Once in

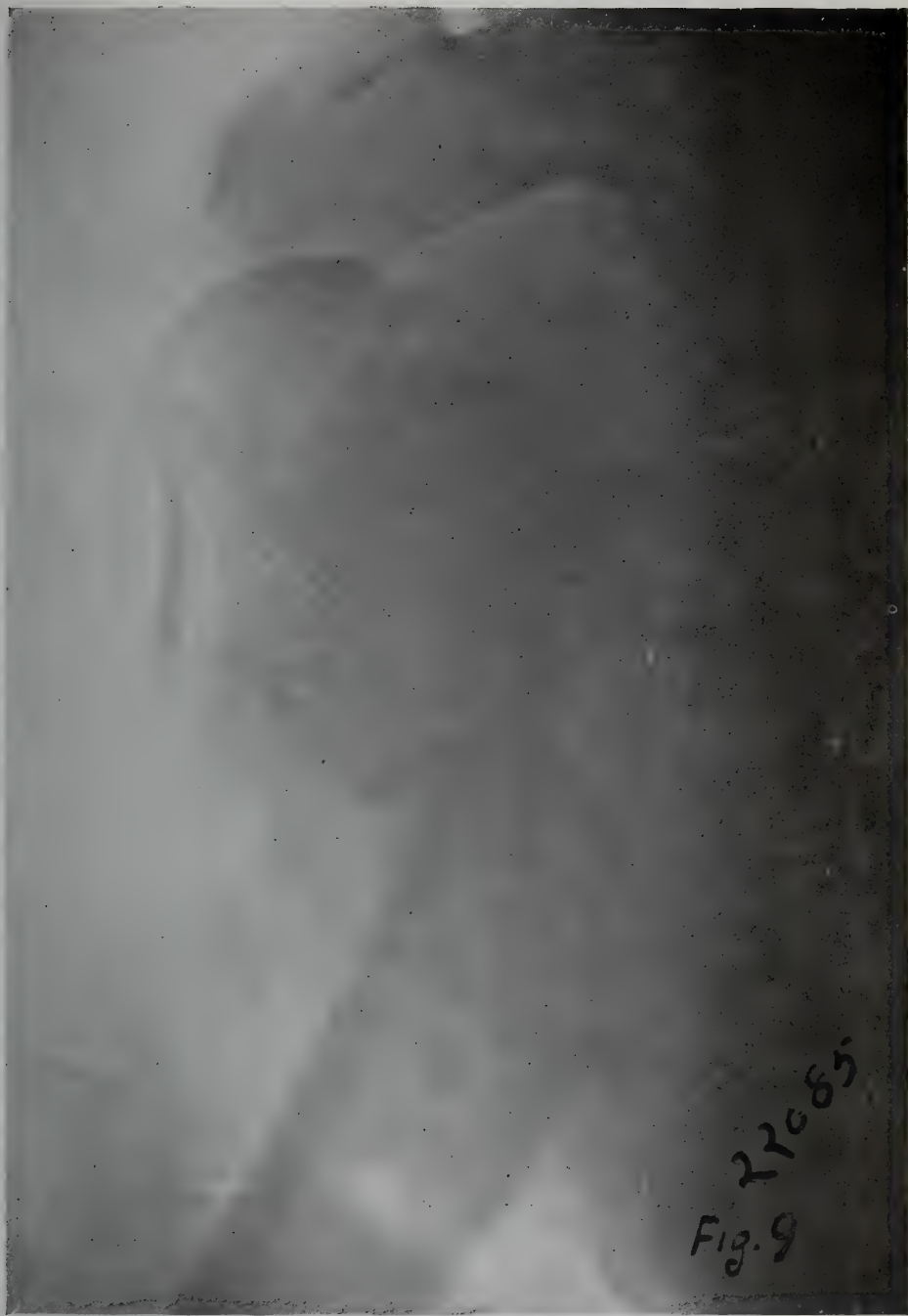


Fig. 9. Fracture of surgical neck in young muscular man. Several attempts at reduction with and without ether had failed. Reduction by open operation with temporary "spiking" gave a perfect result.





Fig. 10. Old fracture of surgical neck in woman of 40. Almost total loss of abduction had resulted. A cuneiform osteotomy was done and the arm carried into abduction on a wire "triangle" well shown in the plate. The result was an excellent (though not perfect) restoration of function.

place they need no more (as a rule) than a stitch of chromic gut or kangaroo tendon to hold them. Early motion is desirable, and the end results are incomparably better than can be obtained by other methods.

I recognize fully that an operation involving the shoulder joint is a serious matter, but in view of the results I believe that separation of the humeral epiphysis or fracture of the surgical neck of the humerus in vigorous persons below the middle years will come to be recognized as a condition calling for early operation in a very large proportion of cases.

### Leg Fractures.

Fractures of the lower leg are very common and not unusually lead to a good deal of disability, a disability the more regrettable because these fractures usually occur in vigorous individuals, a very large proportion of them being the result of industrial accidents.

Fractures of the shaft in this region present no difficulties of diagnosis—the difficulty is one of obtaining and keeping proper position of the fragments—often a very difficult matter because so often the line of break is an irregular one.

The spiral breaks, for instance, are almost impossible to reduce accurately.

The question that comes up in almost every case of leg-fracture is whether the position is good enough to let it go, not whether it is perfect but whether it will pass, for *perfect* reduction is usually impossible without open operation.

There are two factors that must be considered in this decision that are apt to be somewhat neglected, though I believe them of prime importance.

The first is the question of the general line of the shaft. If this line is good—if the line of the upper part of the tibia prolonged downward strikes about where it should in relation to the ankle and foot, we can be more complacent about irregularities at the point of fracture. If the foot is twisted (especially if it is twisted outward) the position is too poor to put up with, and must be bettered.

The second point concerns the question of repair. I am sure that if we could have adequate statistics of delayed union that two-thirds of the cases would be found in fractures of the lower leg. Such delay in union is important, not only on ac-



count of the loss of time, but also because it postpones the beginning of active motion and promotes stiffness of the ankle, a very important cause of prolonged or permanent disability in leg fractures.

We can not afford, therefore, to be content with any reduction that does not give first-rate opportunities for union. In the long oblique fractures, or in fractures with splintering, we are pretty sure to have plenty of callus and a tolerably normal rate of union.

In certain nearly transverse fractures, however, we commonly may have a condition that makes for much delay in consolidation. There may be little shortening and only a trifling overlap of the bones, or perhaps the bones lie with the fracture-surfaces in contact but only by an edge.

In such fractures there is little tearing-up of the periosteum. It is, however, the periosteal callus that we depend on for union, and only the *inner* side of the periosteum forms callus. Now, the periosteum at the edge of the fracture-plane, if not torn loose, forms callus only in very small amount, and in a case such as we are considering this callus is not only small in amount but it has nothing on the other fragment to hold to—only the *outer* side of the periosteum, with which it cannot become incorporated.

I confess that I do not know whether it is *histologically* possible for the outer surface of the periosteum to become incorporated in a callus, but clinically it does not seem to happen, or happens only very imperfectly.

Clinically, I believe this bar to union of fractures has not been adequately recognized. I mean to look the matter up presently: just now I can only say that I believe a position that brings the outer side of the periosteum of one fragment against a similar surface of the other fragment presages non-union, or at least long delay in union.

If I am right in this, it means that all approximately transverse fractures of the lower leg (or other bones) must be reduced with a reasonable accuracy either by non-operative or by operative means in order to attain anything like a desirable result. I know this is new doctrine, but a study of a good many cases has led me to believe it true.

If I am right, then, we may disregard minor irregularities in leg fractures so long as we do not leave the leg distorted out

of its normal line, or leave surfaces incapable of union in a relation where we seem to expect them to unite.

I suspect that, as time passes, the operative surgery of these leg-fractures in working-men will increase, for even delay of union in the worker is a very serious matter.

#### Ankle Fractures.

Ankle-fractures are not less common or important than fractures of the leg and I suspect that the results usually obtained are open to no less criticism.

Fractures at the ankle fall definitely into types.

Pott's fracture, the book type, is not the usual lesion. Commonest of all is fracture of the fibula alone. It may occur at any level from the tip of the malleolus to about three inches above the joint.

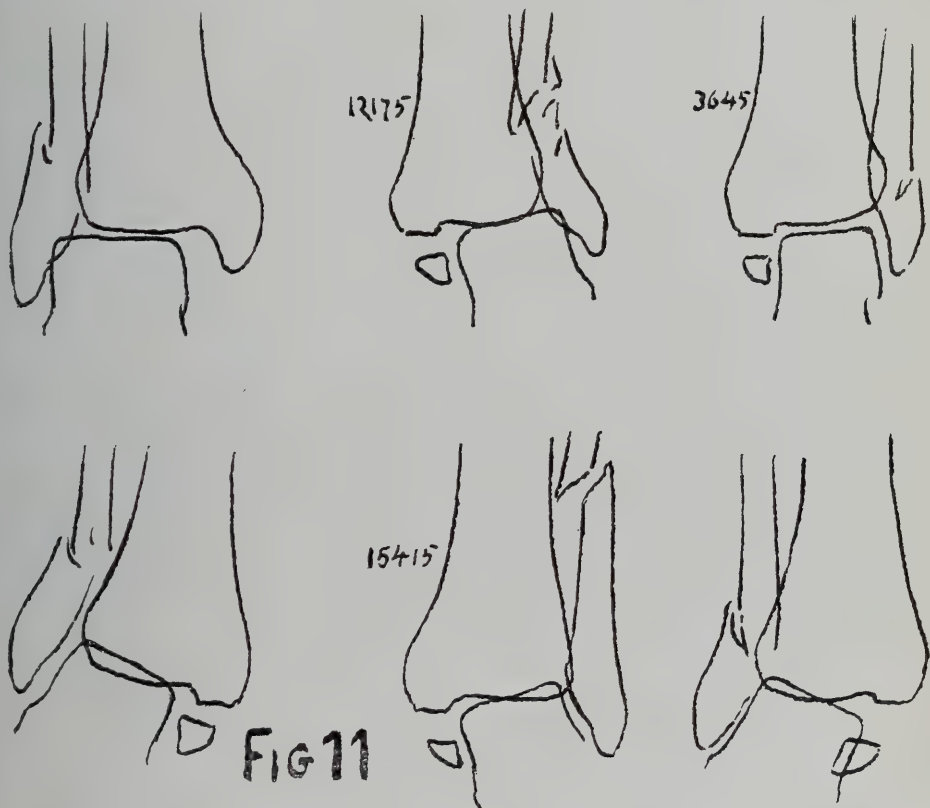


Fig. 11. Pott's fracture in its various aspects; sketches from x-ray plates in the writer's collection. The first shows the form with displacement but without fracture of the internal malleolus. It will be noted that the outward rocking of the part is not constant. There is usually downward displacement of the fragment of the internal malleolus.

The fracture may result from inversion or from eversion of the foot. Inversion is, however, the most usual mechanism. Fracture by inversion usually involves extensive spraining of muscles and tendons on the outer side of the ankle.



There may be some displacement of the fracture-fragments, but there is no displacement of the ankle-joint and it is a question if simple displacement of the fibula makes the slightest difference in the result, which is always excellent unless we have allowed excessive fixation and lack of exercises to produce "flat-foot" from muscle atrophy.

Pott's fracture includes a fracture of the fibula, to be sure, but the essential of the fracture is a giving-way of the supporting mechanism on the *inner* side. This may be a break of the malleolus or a tearing of ligaments only. In either case there is an amount of tearing far in excess of what is usually supposed.

In Pott's fracture the mechanism of the "mortise" of the ankle-joint is destroyed and the astragalus is free to move outward or tilt outward, the whole foot going with it.

The diagnostic tests of the fracture are, first, the possibility of shoving the foot bodily inward and outward; second, the presence of a prominent *edge* of bone on the inner side of the ankle, just above the malleolus.

There may be forward displacement of the foot, but such displacement is commonly associated with fracture of the front edge of the tibia.



Fig. 12. Posterior luxation fracture of the ankle. 1 shows the tibial fragment (and the surface on the tibia from which it was torn is clearly seen); 2 shows the fibular fragment. Both are displaced backward with the foot. Author's case.

Backward displacement is commoner; yet I have found backward displacement in *uncomplicated* Pott's fracture very rare indeed.

The lesion that does allow backward displacement is one to which I would call particular attention as it is undescribed in the textbooks and is often overlooked.

This lesion is a splitting-off of a large portion of the back edge of the tibia in a fragment that carries the internal malleolus as well. There is also a fibular fracture. The foot, the astragalus, the tibial fragment and the lower fragment of the fibula move backward together.

The displacement is less obvious than in the rare cases of pure dislocation, for the relation of the foot to the malleoli is unchanged.

It is probably for this reason that prior to my first report this lesion seems to have been noted only by Stimson, and by him only in a couple of old cases that came to operation. A case recognized and reduced by me four years ago seems to have been the first fresh case noted.

The fracture seems not uncommon. I have myself verified the diagnosis on five fresh cases, operated on four late cases for disability and seen at least four more old cases, and several x-rays of old lesions unreduced.

In all these cases disability is due not only to the loss of direct support for the tibia on the astragalus, but also to the utter loss of lateral support to the astragalus in its new position. So we have lameness from outward displacement, or rocking of the astragalus just as with Pott's fracture, added to the disability from the backward displacement.

"Inverted" Pott's fracture, or "Inversion Pott's" is also a lesion commonly misinterpreted, though long recognized. (Fig. 13). Sharp inversion of the foot (with or without rotary twist) may not only break the fibula, but may split off the *internal* malleolus. If the malleolus is split away, the line of fracture runs *up* and *inward*, obliquely, and the fragment is rather large. There is inward displacement (or mobility) of the foot. The break in the fibula is *low*. If such a fracture is treated as a "Pott's," we have excessive inward displacement.

If recognized properly, the lesion is treated by full correc-



tion. There is no danger of over-correction outward, but there is danger of non-union or delayed union of the tibial fracture which communicates directly with the joint. Some few of these fractures call for open operation and pegging, before we can secure union.

If union can be secured, the tendency toward inward displacement (talipes varus) gives rise to little or no disability—non-union with talipes varus was the cause of considerable disability (not greatly benefitted by operation) in one case observed.

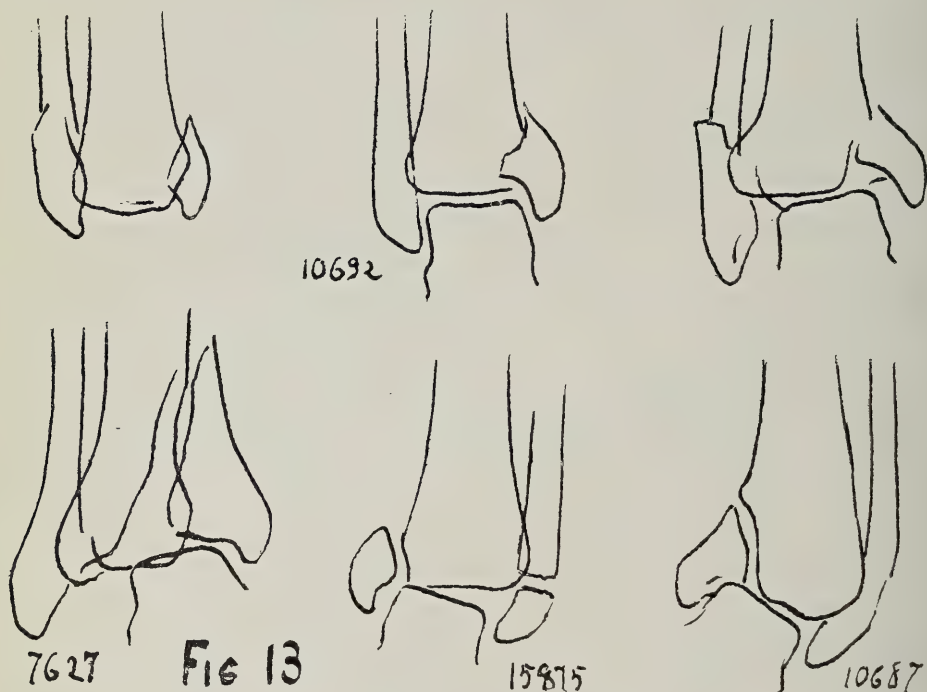


Fig. 13. "Inversion" Pott's fracture. The internal malleolus is broken away in a large fragment and displaced inward. The break in the fibula is low. Nos. 15875, and 10687 are old fractures with non-union of the tibial fragment. Sketches from radiographs in the writer's collection.

Separation of the epiphyses is a lesion almost identical, clinically, with the breaks above the joint. It is rare.

Fractures *above* the joint may be oblique in any direction, most often up and outward. Such fractures lack *any* support and the position is a composite result of lesion, muscle-pull, and gravity. They are readily diagnosed by the displacement of foot and malleoli *together* on the tibial and fibular shafts.

Now as to disability—we have three important factors, in large measure dependent of the precise lesion.

1. Distortion of joint surfaces, causing unnecessary joint-friction, and limitation of motion.

2. Deviation of the weight-bearing axis.
3. The loss of motion (due to long immobilization).

These last two factors are independent of the form of bone-lesion entirely, and it is the last factor, the stiffening, that is responsible for much utterly unnecessary suffering.

Now this stiffening process (even though it does not involve the mythical "adhesions in tendon sheaths") results in shortened muscles and in contracted new-formed scar tissue about joints.

When the condition is once established it is curable only in the young: in the older patients time, exercise, late massage and passive motion are all of little avail.

This stiffening, then, important as it is (perhaps the commonest cause of disability in this region) is avoidable, but hardly remediable even by operation: when we operate for correction of deformity we shall nearly always have to discount from our expected results something for the effects of this stiffening present before operation and persisting after it.

The factor of deviation of the weight-bearing axis is also essentially independent of the exact bone-lesion. It is purely a matter of static mechanics. The foot must carry the body weight and is fitted for its work, but only for its normal work, that of carrying a weight squarely imposed. If this weight does not come down squarely, the foot is handicapped in its work.

For working purposes we may say that the foot presents a triangle of support bounded by the metatarsal heads (first to fifth) and the heel. If the weight-bearing axis of the leg, prolonged downward, strikes within this triangle we have fair conditions of support. If the prolongation strikes outside this triangle we have very bad mechanical conditions, and inevitable strain.

Now if the deformity is one of forward bowing we have a disturbance of relations but one that only shifts the burden over a point further forward in the foot. Unless there is damage in the joint itself such a deformity does not lead to painful disability from strain, but at worst to a shambling gait like that from the like deformity due to anterior bowing in rickets.

If on the other hand we have backward bowing, we may have the weight-bearing line falling clear back of the heel and giving painful strain. Even if the deformity is less, and if the support is adequate in standing, such a deformity results in very



poor conditions for locomotion—a very extreme limp and hitch and much loss of usefulness of the limb.

If there be deviation of the foot inward to a great degree we have painful strain on the peroneal muscles and the outer ligaments, and the development of rolling of the foot into a position of talipes varus, with resulting insecurity of tread and loss of power in propulsion. This deformity in milder grade gives inability to use the ball of the foot properly in propulsion, but tends to produce limping rather than painful strain.

On the other hand, if the deformity be a deviation of the axis inward (of the foot outward)—the commonest displacement of all—we have a strain thrown on the muscles and ligaments that normally sustain the arch; the weakest part of the ankle mechanism.

Even if this deviation be comparatively slight we are apt to have trouble and the trouble expresses itself in all the ways that we are accustomed to note in the simple “static flatfoot” not dependable on trauma. There may be actual flattening or there may not.

These cases differ from ordinary flatfoot, however, in one way—namely in that they are not relievable by plates. Long and careful trial not only in cases treated by myself, but also in a series in which I had the peculiarly skillful help of Dr. E. G. Brackett has convinced me that attempts to relieve flatfoot after fracture by means of plates, is doomed to failure if there be *any* deviation of the weight-bearing axis. We had *no* successful case of plate treatment in this class.

There is, however, a class of cases curiously similar in appearance in which we have *no* deviation of axis, but a flatfoot that is simply the result of lack of support from muscles that have lost tone from disuse. I have once seen a lengthening of the internal malleolus and a consequent relaxation of the internal ligaments. A like result may be seen where ligaments had been widely torn in the first place, very rarely where there has been non-union of the internal malleolus. As a rule, however, the trouble is lack of muscle support only.

These cases *are* relievable by plate support just as ordinary flatfoot is. These are also, in vigorous individuals, curable by proper exercises. Moreover development of this sort of trouble may be avoided by proper support and exercises in the period of *beginning* weight-bearing, and I have long made it a rule to

use such support and exercises in every case of Pott's fracture until function was well established.

This latter class of *static* cases do not call for operation in any event.

We still have the actual damage within the joint to consider, and this may be very simply classified. We have to deal with Widening of the mortise, allowing rotation of the foot.

Insufficient direct support to the astragalus from displacement of the foot back or forward—(always complicated by widening of the mortise).

Displacement of the astragalus (with tilting) in inversion Pott's fracture, sometimes complicated with non-union of the tibial fragment.

Loss of motion due to backward displacement.

Loss of motion from excessive bony thickening in the repair of any of these lesions: this thickening may directly limit motion or may interfere with the tendons.

All these conditions and the various deviations of axis not arising from joint-distortion can be ameliorated by operation and the disability in most instances actually cured—but only by discriminating as to exactly what we are operating for and what we can do by operation. Most failures are from lack of preliminary study of the ankle and of the x-rays, and of neglecting to outline the operation clearly before cutting.

The easiest operations are those to correct deviation of axis above the joint. This is very simply done by linear osteotomy of both bones and is applicable not only to cases of fracture above the joint, but also to such joint-fractures as have healed with a useful joint that we cannot improve, but with a twist of the axis. Trendelenburg used this sort of osteotomy for ordinary flatfoot and it has been used for various forms of fracture flatfoot with fair results.

Since we have learned to do bimalleolar osteotomy, however, this operation is preferable for nearly all fractures in any way involving the ankle-joint.

The typical operation is for the type of deformity of the common Pott's fracture—to correct the outward displacement of both malleoli and at the same time the widening of the mortise that allows rocking outward of the astragalus.

The operation as usually done is Stimson's: some of the details of "loosening up" that I am going to describe I think are my own, not chargeable to Stimson.



A long curved incision is made on the inner side at the back edge of the internal malleolus; an incision of not less than four inches, for we need the room, and a long incision heals as quickly as a short one. The inner malleolus is then chiselled through: it must be cut at exactly the level of the joint, a matter of some nicety and dependent on judgment, aided by x-rays but not by rules, for there are none.

We must be careful not to break into the tendon sheath of the tibialis posticus: there are no other structures likely to be touched.

When the internal malleolus is wholly cut across we make a like incision on the outer side just behind the edge of the outer malleolus and denude the fibula enough to chisel through this also at the joint level. Here we have the level of the joint already established by the chiselling on the other side. After a little practise the level on both sides can be struck almost precisely—a point of much importance not only because it facilitates correction, but because we do not wish to damage the astragalus—a “break” I have seen made several times.

Now we have both malleoli loose and the operation might be considered done according to Stimson's description. It is in fact only begun, for the fragments are immovable or nearly so, held by solid, tight scar-tissue. This scar tissue we may not cut for it is everywhere about the joint and there are too many vessels and nerves about. It must be torn ! There are two ways to do this and usually both are needed.

First we may insert a blunt lever—I usually use the back end of an unjointed pair of bone-forceps: (a “dissector” of whatever type will bend double at this work)—which is inserted between astragalus and tibia across one malleolus and used to pry the malleolar fragment downward. Great force is needed. Then the manoeuvre is repeated on the other side of the joint.

Second, we pull the patient down over the end of the table and deliberately ab-and adduct and circumduct the foot with great force, the assistants furnishing fixation or trying to.

When all this has been carried out we can carry the foot bodily inward into the desired correction and hold it there without force. No pins or plates or other metal junk are needed if the operation has been properly done, for there is no active tendency to recurrence of displacement.

The operation is completed by loose suturing and the usual

dry sterile gauze dressing is used. A plaster is quickly applied and the operator's hands outside the plaster execute the correction (there is little chance of correcting too far) and maintain the position until the plaster has set solidly.

One might expect a good deal of trouble from the violent handling but nothing of the sort occurs. Nothing is torn save the new-formed ligamentous structures and while a sickening amount of violence is used it does no harm—does not even cause post-operative pain—what causes post-operative pain is putting up the foot *under tension*: pain from this cause may be very severe indeed. The very object of the tearing is to avoid any need of tension.

Reaction after the operation is slight, union is prompt, and massage and passive and active motion may be begun as a rule at two and a half to three weeks.

If the deformity is inward not outward, and the result of an inversion Pott's fracture, we must decide beforehand what line we are to follow in cutting away the inner fragment. If union is imperfect we will reopen the old fracture line.

Usually it will be wise to cut somewhat obliquely down and out, aiming for the line of original fracture.

Whatever the line of separation decided on in dealing with the inner side, the fibula is dealt with in unvarying fashion, that is, chiselled across at the joint-level.

The loosening of fragments is carried out just as in the operation for ordinary Pott's fracture deformity, though it requires rather less force.

Reduction is accomplished by abduction. In this case, however, unless the internal malleolus has been squarely cut (the exception) *there is a tendency to reproduction of deformity*.

It may be sufficient to employ plaster of Paris as above noted but in these cases it may be wise to use some form of operative fixation.

We may use a pin or a staple of the Arbuthnot-Lane type. I have seen good results from both: personally I feel safer with a steel "drill-rod" pin driven through and left in for one and a half to three weeks. Such a pin comes out after doing its work: the other things stay in, and what they may do after their work is done, no one quite knows.

There are cases, as we have seen, in which *backward* or *forward* displacement must be met and dealt with.



These are technically most difficult of all. Not only must we deal with the valgus displacement which is always present, but we must restore the wandering convex surface of the astragalus to something near its normal bed. The normal bed for it is long since filled up or smashed and we must reconstruct it before it can be of use. Such reconstruction, under the circumstances, is a *plastic* operation: we must in fact, *dig out* a place for the astragalus, roughly corresponding to its original site.

Before doing this we must chisel across the malleoli and tear away adhesions in the usual fashion.

As the astragalus comes back under the tibia we have not only a direct support assured for weight-bearing, but a competent lateral support by the malleoli as well. The connection is usually readily maintained with plaster of Paris, holding the foot in forced dorsal flexion.

This correction of lateral displacement with forward or backward displacement, added thereto, is the most difficult of the ankle operations.

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### The Relation of the Liver to Diabetes.

By J. J. R. MACLEOD, M. B., Ch. B., Professor of Physiology, Western Reserve University.

The earliest symptom of clinical diabetes is the inability of the animal body to utilize sugar to the physiological extent. This is tested clinically by giving the patient a weighed quantity of sugar in the morning before food is taken. A healthy person can utilize 100 grams of dextrose, (or cane sugar), so that none of it makes its appearance in the urine. Should glycosuria become established after taking this amount of dextrose it is a sign of faulty carbohydrate metabolism and, according to the most experienced clinical observers, such cases afterwards become typical diabetics. Alimentary glycosuria is therefore a symptom of incipient diabetes and the practical importance of diagnosing the condition at this stage rests in the fact that when such cases are properly dieted the further development of the disease may be prevented. It is scarcely necessary to point out the significance of these facts in connection with examinations

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*Read before the Experimental Medicine Section of the Academy of Medicine of Cleveland, February 10, 1911.*

for life insurance\*. Another symptom of incipient diabetes in some cases is obesity. In these cases the sugar which the organism cannot utilize, instead of appearing in the urine, becomes converted into fat, which is then deposited in the tissues.

The above observations indicate the importance of a clear understanding of the mechanism by which the normal organism deals with excessive ingestion of sugar. During the absorption of sugar from the intestine, the blood of the portal vein will be found to contain far more than its normal percentage, but this is not the case in the blood of the systemic circulation. The liver therefore must remove the excess of sugar from the portal blood, and when it fails to perform this function adequately, the excess of sugar overflows into the systemic circulation causing temporary hyperglycaemia and glycosuria. The liver converts the sugar into glycogen which becomes deposited in the cells of this organ and retained there until it is required by the tissues. The gradual mobilization of this retained carbohydrate is controlled by the presence of something in the blood. When the tissues require more sugar a chemical messenger in the blood causes the liver to convert some of its glycogen into sugar which is then transferred to the acting tissue. Some observers believe that changes in the amount of sugar in the blood furnish this chemical messenger.

Failure of the liver to retain the excess of ingested sugar might be because: 1. It cannot convert the sugar quickly enough into glycogen, or 2. Although it converts it into glycogen, it fails to retain this.

There is no method by which we can directly determine which of these two mechanisms is really at fault in diabetes mellitus, but in several of the forms of experimental diabetes it can easily be shown that the initial cause of the increased sugar content of the blood is excessive breakdown of the glycogen of the liver into sugar. These forms of experimental diabetes include stimulation of certain portions of the nervous system, excision of the pancreas, injection of adrenalin (suprarenalin) and asphyxia. A similar hyperglycogenolysis also occurs after death. The evidence in support of the above statement is that the hyperglycaemia in all these forms of experi-

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\*In doubtful cases great care must be taken in testing the urine, for several substances besides dextrose may cause reduction. This is especially true in highly colored concentrated urines.



mental diabetes may occur when no sugar is in process of absorption from the intestine; always provided, of course, that there be available glycogen in the liver. In the case of some of these experimental forms of diabetes, the glycosuria disappears when all of the glycogen in the liver has been used up, but in others (pancreaectomy, repeated adrenalin injection) it persists, the sugar being now derived from other sources than glycogen.

It is thus evident, whatever may be the exact cause of the failure of the diabetic organism to utilize sugar, that much light can be thrown on the pathological condition by a careful study of the conditions which bring about excessive glycogenolysis. We know that the conversion of glycogen into sugar in the liver is the work of a ferment, which may display its action quite apart from the hepatic cells. The process does not, as was at one time supposed, depend on the vital activity of the cell. The most natural assumption, therefore, to make regarding the cause of excessive glycogenolysis is that an increased amount of this ferment—glycogenase, as it is called—has been secreted by the liver. It is in such a way that the digestive glands bring about increased action: when they are called upon to digest greater quantities of food, they secrete a more plentiful or a stronger juice. Reasoning by analogy, one might conclude that it is by a similar process that the liver decomposes more glycogen. This view is usually accepted, and in support of it Bang and his collaborators have pointed out that the rate of disappearance of glycogen in incubated specimens of minced liver (of the rabbit) is greater than normal when, prior to death, the nervous system has been excited in some way known to produce glycosuria. Such a result, however, does not by any means prove that more ferment is present in the liver in the specimens showing more rapid glycogenolysis, for such increased activity may just as well be because of a change in the environment in which the ferment is acting. Conditions favorable to its activity may have developed as a result of the stimulation. A review of modern work on ferment action makes it evident that variations in the activities of ferments are just as frequently due to changes in the chemical nature of the solution in which the ferment is acting as to variations in the amount of ferment. The acidity and alkalinity, the nature of the inorganic salts present as well as

the presence of so-called co-enzymes and activators, etc., are most important in this regard. Out of the innumerable examples which one might choose in illustration of these facts we may select one which has a more or less direct bearing in the present connection. The diastatic ferment of the pancreatic juice becomes completely inactivated when the juice is dialyzed against distilled water until all the inorganic salts have disappeared. By adding some boiled pancreatic juice, or some of the concentrated dialysate to the inactivated juice its diastatic power returns.

Our problem, then, narrows itself down to this: is the variable glycogenolytic activity of the liver due to changes in the amount of glycogenase (glycogen-splitting ferment) or to changes in the environment in which a constant amount of this ferment acts? In the present paper we shall record several experimental observations which, although they do not furnish final proof, are yet strong arguments for the view that the ferment does not vary in amount.

As already stated a rapid glycogenolysis occurs in the liver after death, so that in some hours there remains only a small part of the glycogen originally present. This *postmortem* process, we have found to start within a few minutes after death, to increase rapidly in intensity up to about twenty minutes and then to remain constant. We do not mean to imply by this that an equal amount of glycogen is converted into sugar during equal intervals of time, but that a constant proportion of glycogen present at the beginning of each period undergoes this change. This is merely an application of the well known law of mass action in chemistry and it indicates that the only thing which is changing is the amount of glycogen: it indicates, therefore, that the amount of ferment remains the same.

Furthermore, extracts of liver prepared sometime after death, when glycogenolysis is in full swing, do not seem to be any stronger in glycogenase than extracts prepared from this organ immediately after death. If this *postmortem* glycogenolysis were due to the production of an increased *amount* of ferment we could not, of course, obtain the result indicated above: there would be a progressive increase in the proportionate amount of glycogen decomposed.

The onset of *postmortem* glycogenolysis is probably caused by acid production in the dying liver. Lactic acid is known to



become developed, and, like other acids, to have a marked accelerating effect on diastatic fermentations.

Turning now to increased glycogenolysis *during life*—the initial cause as we have seen of at least most forms of experimental diabetes—we have chosen for our investigation splanchnic glycosuria. When the great splanchnic nerve on the left side is stimulated with the electric current, just before it passes under the suprarenal capsule (in dogs), marked hyperglycaemia, with consequent glycosuria, soon becomes established. Is this associated with an increased secretion of the ferment glycogenase, or is it due to some change in the conditions under which a constant amount of ferment is acting? We cannot as yet furnish a final answer to this question, but there are several experimental results which certainly seem to indicate that there is no change in the amount of ferment. These experiments are briefly as follows:

1. The rate of postmortem disappearance of glycogen is no greater in livers removed immediately after stimulation of the splanchnic nerve than it is in a normal liver.

2. An extract of liver added to a pure glycogen solution and the mixture incubated for a certain time nearly always induces the same amount of glycogenolysis whether the extract be prepared from a resting, normal liver or from one, the splanchnic nerve to which has been stimulated. Sometimes, however, a slight increase is noticed in the latter case.

3. By making an anastomosis between the portal vein and the vena cava the liver, deprived of blood except that of the hepatic artery, soon shows hyperglycogenolysis, which is due no doubt to the same causes as in the postmortem process; when the great splanchnic nerve is stimulated in these cases there is no increase in the glycogenolysis. Of course, this negative result might be due to a disconnection between the nerves and the liver cells because of anemia. To diminish such anemia we have left the hepatic artery intact. Another objection to the experiment, as a proof of the constancy in ferment amount, is that the isolation of the liver may have brought on as great a glycogenolysis as is possible under *any* circumstances, so great that is to say, that it cannot be any further increased by nerve stimulation.

The final conclusion can be reached only after a large number

of experimental results have been accumulated, and the method by which we believe they can best be obtained is the second one indicated above i. e., comparisons of the glycogenase content in resting and hyperactive livers.

A few words may be added in conclusion regarding the relationship of the above experimental work to the chemical pathology of diabetes mellitus. There is no doubt, of course, that failure of the tissues to utilize the carbohydrate molecule is the most striking abnormality in this disease. Not only does the diabetic organism allow all ingested carbohydrate to pass through it unused, but it proceeds to convert the proteins and at least the glycerine constituent of fat into sugars, which, however, it cannot utilize and which therefore appear in the urine.

Many investigators have believed the cause of these conditions to be the disappearance of sugar-destroying (glycolytic) ferments in the tissues. These sugar-destroying ferments were supposed to be in some way connected with the islands of Langerhans and no doubt Cohnheim's researches in this connection will be recalled.

But all recent work indicates that, after all, Claude Bernard was not far from the truth when he suggested derangement of the glycogenic function of the liver as the essential cause of diabetes. When this mechanism is thrown out of gear, the *first* consequence is alimentary glycosuria—ingested sugar appears in the urine—and the *final* result is conversion of all available chemical substances (proteins and fats) into sugar. The tissues must have sugar; if they cannot get this as in the usual way from glycogen, then the liver attempts to supply them with it from other sources and in the excess with which in this way they come to be supplied, they evidently can for a time at least utilize some small proportion, which is enough to keep them alive. It would indeed appear as if it is only dextrose which has been derived from glycogen that the tissues can deal with, dextrose from other sources, is much less readily utilized by them; such dextrose they can only use when it is present in high concentration in the tissue fluids. The recent advance in our knowledge of the chemistry of dextrose indicates that there are two distinct stereoisomeric varieties of the substance and that these behave in a different manner toward certain ferments. It is conceivable that the carbohydrate-splitting ferments of the tissues can utilize



only one variety of dextrose and that this is prepared for them by passing through a glycogen stage.

The rational treatment of diabetes at present is undoubtedly to keep the concentration of unsuitable dextrose in the tissue fluids as low as possible by withholding carbohydrates from the food. The ideal treatment would be to resuscitate the lost glycogenic powers, but we cannot hope to accomplish this until we know something about the conditions which cause it to vary.

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### Drug Exanthemata in Relation to Anaphylaxis.

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#### I. REVIEW OF ANAPHYLAXIS.

In 1904, while Ehrlich was visiting America, Theobald Smith called his attention to the fact that many of his guinea pigs sickened and at times died suddenly after receiving doses of diphtheria antitoxin. The result, on Ehrlich's return to Europe, was Otto's work on "The Theobald Smith Phenomenon," an article by Rosenau and Anderson<sup>1</sup> appearing independently and almost simultaneously.

Even before 1905 certain facts had been noted concerning this phenomenon and the name "anaphylaxis" had been given to it by Richet in 1904 while working with a protein derived from the tentacles of the sea anemone *Actinia*. Its significance, however, had not been grasped and it has remained for American students to collect a large part of the data that have accumulated in the last five years concerning this interesting and important problem. Otto<sup>1</sup> was the first to show that the phenomenon was not dependent on the antitoxin but on the serum used, for the same results were achieved by the use of normal horse serum as by the use of antitoxic serum.

As defined, anaphylaxis is a state of hypersusceptibility of the organism to foreign substances and is brought about by the introduction of foreign proteins and their cleavage products. These substances must be protein in nature though not quite all of them will cause the condition, e. g. leucin and tyrosin.

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For example, let us give a normal guinea pig a sensitizing dose of 0.5 c. c. of horse serum either subcutaneously, intraperitoneally, intravenously or by the intracranial route. After an incubation period of from seven to nine days let us reinject the sensitized animal with from 0.01 to 0.1 c. c. of the same serum. The pig becomes restless at once, scratches at his mouth, trembles, and appears to be in distress. His breathing becomes irregular, rapid, and shallow. The sphincters refuse to act. The pig has convulsions, with cessation of breathing, and dies quickly in so-called anaphylactic shock, the heart continuing to beat for some time after respirations have ceased.

If the first or sensitizing dose, or the second or toxic dose of the serum has been too small, perhaps the pig, though showing severe symptoms, will recover. Then he passes into a stage of immunity, for the time being, in which he will no longer react to a dose of the same serum. But in this connection Wells<sup>30</sup> working with egg-white, was able to sensitize a guinea pig with from 0.00000005 to 0.000001 gram so that 0.5 mg. was a minimum lethal dose for the second or toxic dose. If, on the other hand, the sensitizing dose is too large, e. g. 25 c. c., Alphen<sup>3</sup>, working with cattle, and Otto, Gay and Southard, working with guinea pigs, have shown that the incubation period is much lengthened or even that the animal passes into a state of immunity as regards any further action from the toxic injection.

The incubation period for anaphylaxis varies in different species from seven days to two or three weeks and is shorter after intravenous than after subcutaneous injection. Once the animal is sensitized he remains hypersusceptible to an injection of the same serum for an indefinite period; at any rate 732 days in the guinea pig. Alphen mentions the case of a cow dying in acute anaphylactic shock from 10 c. c. of "milzbrand" serum, the sensitizing dose having been given 13 months before.

On examination of the stricken animal it is found that there is a lessened coagulability of the blood<sup>5</sup>. Pearce and Eisenbrey<sup>10</sup>, Biedl and Kraus<sup>7</sup> and others have found a lowered blood pressure. Especially in rabbits, and also at times in other animals, at the point of the injection of the serum there is a markedly edematous reaction area. This reaction in rabbits may go on even to the formation of a sterile abscess (phenomene d'Arthus<sup>4,5</sup>). In



cattle, horses and man there may be numerous areas of edema about the eyes, nose, and mucous membranes of the mouth, throat and vulva. The blood picture is that of a leukopenia, followed later by a leukocytosis. The blood platelets are increased.

Through pathological examination, Auer and Lewis<sup>1</sup> have shown that the acute anaphylactic death<sup>2</sup> is due to asphyxia caused by the development of a stenosis in the pulmonary air passages, so that practically no air enters or leaves the lungs and they remain distended. This action is peripheral for it occurs after destruction of cord and medulla, and it is probably caused by tetanic contractions of the smooth muscles of the bronchioles. Schultz<sup>3</sup> has strengthened this theory by showing that segments of smooth muscle of the intestine from the sensitized guinea pig contract more vigorously upon treating them with dilute horse serum than do segments of muscle of non-sensitized guinea pigs. In addition, guinea pigs dying in anaphylaxis, show hemorrhages into their lungs and stomach walls with fatty changes in the heart muscle. In cattle and goats, Alphen has invariably found edema of the lungs.

Mention has been previously made of the fact that a guinea pig which survives its second dose of serum, after having shown symptoms of anaphylaxis, passes into a stage of immunity associated with anaphylaxis "allergie." For example, in for months or even years. This condition may be attained in another manner. If we reinject the animal at intervals of two or three days, instead of waiting for its incubation period to elapse, we find that it is no longer susceptible to the toxic dose of serum and that it is now immune. The guinea pig is then said to be in a state of anti-anaphylaxis or immunity. The condition has been studied very thoroughly by von Pirquet<sup>4</sup>, especially in reference to vaccinia, tuberculin reactions, and serum disease in man. He has named the condition of acquired immunity associated with anaphylaxis "allergie." For example, in a man vaccinated for the first time, a reaction, starting in about four days with the formation of a macule, passes successively through the stages of vesicle, papule, and pustule, the condition reaching its height in about 10 days with general symptoms of fever, malaise, enlarged glands, leukopenia, etc. However, if the man has been previously vaccinated and his immunity is

good, then in this state of "allergie" or acquired immunity there is a time change in the resulting reaction. The process appears and ends in 24 hours. There is a qualitative change in that only a small evanescent papilla with no areola forms, and a quantitative change in that the reaction is only local. The practitioner should take advantage of this: by watching his patient during the first 24 hours, if the entire reaction is gone through with in miniature then the patient's immunity is good and another vaccination is not required.

To return to our guinea pigs, if we take a sensitized pig and, after the close of the incubation period, withdraw some of its blood and inject it into another guinea pig, it is found that after 24 hours the latter animal is susceptible to an injection of the serum that sensitized the first animal. In other words, there has been a transference of some material, floating free in the blood, from the first to the second pig. The condition is called passive anaphylaxis and it is found that even a guinea pig with an acquired immunity to a serum can passively sensitize another pig to that serum. It is thus seen that anaphylaxis and immunity are two closely correlated phenomena, the latter being only a further stage of the former.

It has been said that a period of at least 24 hours must elapse between the injection of sensitized serum of another animal and the toxic dose of the sensitizing serum, in order to cause passive anaphylaxis. However, Anderson and Frost<sup>1</sup> repeating work done by Biedl and Kraus<sup>2</sup>, and Doerr and Russ, have shown that immediate shock can be produced by the injection of a mixture of sensitized serum and of the serum that caused the sensitization. Moreover Anderson<sup>3</sup> has shown that the young of sensitized female guinea pigs show a passive anaphylaxis. This has been confirmed by other workers including Schenk<sup>4</sup>, who also avers that there is a passive transference through the sperm of sensitized males. Others dispute this latter assertion.

Anaphylaxis is a specific reaction. By this we mean that if a guinea pig is injected with horse serum then he will react to a dose of horse serum only. In fact Rosenau and Anderson<sup>5</sup> have been able to inject three different proteins into a pig and then to get successive reactions for each one on injection of the second dose. Thus far it has been caused by the use of many



different proteins including horse serum, egg white, split proteins (especially by Vaughn<sup>28</sup>), milk, donkey serum, sheep serum, rabbit serum and guinea pig serum, eel serum has been used especially by Doerr and Raubitschek<sup>11</sup>, and Richet<sup>17</sup> has worked with proteins derived from the tentacles of *Actinia*. Metchnikoff<sup>15</sup> has prepared an immune serum against spermatozoa. The toxic principles of the proteins are not affected by various chemicals, ferments, freezing and drying; indeed Uhlenhuth and Handel<sup>9</sup>, as proof of the extraordinary resistance of the sensitizing body, used extracts of dried mummy, of 80 year old cow's placenta, and of dried, 14 year old blood the cells of which had been completely destroyed. Neither chloroform, trikresol, nor formaldehyd hinders the anaphylactic action of horse serum. It appears to be impossible to cause anaphylactic symptoms by the use of leucin and tyrosin. Rosenau and Anderson feeding guinea pigs uncooked meat were able to cause anaphylaxis by the injection of albuminous extracts of the same meat.

Anaphylaxis is not due to any cumulative action, since Richet<sup>17</sup>, working with mytilo- and actino-congestion, has pointed out that he was able to get a marked or fatal result after two injections, provided there was a definite incubation period between them, whereas both doses injected at the same time had no effect. Nor is it any toxin action, at least the anaphylactic antibody is not connected to the toxin body, for Doerr and Raubitschek<sup>11</sup>, working with poisonous eel serum, found that, although it lost its toxic properties when heated to 58° C., it was still able to cause anaphylaxis.

The theories as to the causation of anaphylaxis are many, e. g., that it is analogous to the precipitin reaction, that it is due to ferment action, etc. In this paper, which is intended only as a very short summary, space will not permit of the explanation or discussion of these theories. Permit me in this place, however, to quote Anderson and Frost<sup>1</sup>: "Hypersusceptibility to a normal proteid consists in an increase of the power of assimilation of that proteid, especially an increase in the rapidity of the reaction. This is due to the formation of a specific antibody, demonstrable in the somatic tissues (smooth muscle) and in the serum of sensitive pigs. The action of this antibody on its antigen is quantitative and is probably primarily proteo-

lytic. Anaphylactic shock is due to a disturbance of the metabolic activities of vital cells rather than to the specific (permanent) intoxication. Anti-anaphylaxis is a state of insusceptibility due to saturation of the specific combining receptors. The passive transfer of anaphylaxis as also its hereditary transmission is a transfer of the anaphylactic antibody. Anaphylaxis is a step towards immunity which is conceived as an increased capacity for safely and rapidly eliminating the specific antigen proteid."

Many think that the urticarias which occur in susceptible people, after the eating of certain foodstuffs such as lobster, etc., are an anaphylactic phenomenon. Thus Smith<sup>23</sup> tells of a man, aged 47, who first at nine years of age had a severe urticaria, vomiting and general depression after the eating of buckwheat cakes. Since then he has always been very susceptible to and, by means of his reaction, was even able to detect the adulteration of pepper with buckwheat. The patient was vaccinated with buckwheat flour, using wheat flour for control. Within 15 minutes he had a very severe general depression, areas of edema, etc., while locally at the site of vaccination there was a large wheal.

Wechselmann<sup>24</sup> and Siegheim<sup>24</sup> in this connection mention a peculiar dermatitis found among susceptible carpenters working with a foreign wood called "satinholz." Once the men become susceptible they are no longer able to work around the wood without a resulting severe dermatitis and general reaction.

Sellei<sup>25</sup> has also found that persons affected with psoriasis reacted to injections of psoriasis efflorescences with local redness and edema, while in one case there was a temperature of moderate height. All cases showed some general reaction and several had new eruptions of the disease.

## II. INVESTIGATIONS OF OTHER WORKERS ON THE RELATION OF DRUG EXANTHEMATA TO ANAPHYLAXIS.

We all know that some people are susceptible to the exhibition of certain drugs and reasoning from the last mentioned phenomenon Bruck<sup>6</sup> has conceived the idea that possibly the hypersusceptibility of such persons, resulting in drug exanthemata, is an anaphylactic reaction. Beginning first with tuberculin exanthems he says that Bauer<sup>7</sup> by injecting serum from tuberculous men into guinea pigs, was later able to get severe symp-



toms and characteristic elevations of temperature by injecting tuberculin into these pigs. Some workers agreed and others disagreed with this and Bruck was unsuccessful in his experiments until he had a patient with lupus and lichen scrophulosum. The patient had never been injected with tuberculin and a few hours after receiving 0.5 mg. of Koch's tuberculin O. T. he reacted with general fever, headache, malaise and a disseminated morbilliform eruption. The latter faded in 24 hours and appeared in eight days on giving a like injection. There was also another similar case which reacted after the same dose with an explosive scarlatiniform eruption. Five c. c. of serum from these patients was injected into guinea pigs and 24 hours later the animals received 0.5 c. c. Koch's tuberculin O. T. They sickened in the first hour with characteristic symptoms and died in four or five hours, while the controls remained well. Autopsy findings were negative.

Bruck then goes a step further and reports the case of a man with a marked explosive iodoform rash. Some of his blood was removed and 5 c. c. of serum injected into each of three guinea pigs. After finding the lethal dose of iodoform to be 0.3 gm. per kilo, he, 24 hours later, injected them with about 0.33 gm. per kilo. The first and third pigs in five minutes showed typical anaphylactic symptoms while the second pig showed only slight uneasiness. The controls remained well for the time, though all the pigs later died from iodoform poisoning. Autopsy findings were negative. Bruck concludes that the iodoform intoxication is not brought about by the iodoform itself but that, in its absorption, albumins in the body become iodized so that they lose their specificity for proteins and react to a further dose of iodoform with anaphylactic symptoms. "Iodoform anaphylaxis then is nothing more than a subspecies of the recognized albumin anaphylaxis."

Shortly after this work Klausner<sup>11</sup> had an opportunity to test another man with an iodoform eruption. The guinea pig injected with his serum, and 24 hours later with iodoform, sickened and was dyspneic in the course of two hours, showed parietic symptoms in six hours and died in twelve hours. The controls remained normal.

In his experience with several cases of lupus he reached the following conclusions: That in cases of lupus reacting nor-

mally to tuberculin injections, i. e., where there was no oversusceptibility, passive transference was impossible. But in three cases reacting with a general skin eruption the oversusceptibility was passively carried over to the pigs.

Later Klausner<sup>14</sup> had some cases showing hypersusceptibility to potassium iodid. His first patient had, in 1908, two different iodoform intoxications. Later with 1.0 gm. of potassium iodid he had a bullous iodine erythema. Five c. c. of his serum was injected into a guinea pig, while a second pig received normal serum from another patient, a third pig acting as a control. In 48 hours all the pigs received 0.5 gm. of potassium iodid in 50% solution. The author had previously found that 0.5 gm. caused death of guinea pigs in one hour from the action of the potassium on the heart, but that for one hour they remained normal. Following the injection the first animal died almost at once while the others, though very restless at first, later quieted down and did not die for several hours. In a second and in a third series of like experiments he had about the same results, in each case autopsy findings being negative. After several more experiments he came to the following conclusions: "In the six experiments there was a similarity of the symptom-complex throughout; in the main the sensitized animals immediately after the injection remained motionless and died at once or they sat motionless for some time and died in the course of an hour, while none of the eight control animals showed such symptoms in the course of an hour." Klausner thought that there was a hypersusceptibility of the affected organism to be found in these cases and that possibly some poison was passively carried over to the guinea pigs. Whether, however, an anaphylaxis was involved only further experiments could tell.

An even more striking case has been lately described by Bruck<sup>15</sup>, that of a patient who had such a marked susceptibility to antipyrin\* that he had used none since 1894. However, on

\*Since this page was written Klausner (*Münch. med. Wochenschr.*, Jan. 1911, III, 138,) has reported the case of a man 29 years old with marked antipyrin idiosyncrasy since the age of 10 years. Some of his blood was removed and injected into each of three guinea pigs. Having found that 0.3 gm. of antipyrin could be safely taken by pigs, with only a little stupor at times, he injected 24 hours later such an amount into one of the pigs and into two controls. The pig had true



injecting 5.0 c. c. of his serum into a pig and then in 24 hours giving the pig an injection of antipyrin, the animal became very uneasy in 45 minutes, dyspneic in one hour, finally had tonic and clonic convulsions with paresis of the hind legs and died in five hours. The controls remained well. This experiment is very suggestive, showing not only a very marked hypersusceptibility which was passively transferable to the pig, but also a hypersusceptibility which was still present after a lapse of 16 years. Thus far the longest known case of hypersusceptibility in man to serum disease, as recorded by von Pirquet and Schick<sup>2</sup>, is about seven and one-half years. Bruck in this same paper says that he had been unable to passively transfer this susceptibility in several cases of hydrargyrum idiosyncrasy and Leibkind in Neusser's clinic also had no results in one case.

Both Bruck and Klausner say that the best results are achieved in cases showing an explosive reaction; and both men agree that only further investigation can confirm the reaction.

### III. PERSONAL INVESTIGATIONS ON THE RELATION OF DRUG EXANTHEMATA TO ANAPHYLAXIS.

During the past few weeks we have had the opportunity of testing several cases of drug exanthemata at the Lakeside Hospital Dispensary and would like to present the following:

The first patient, A, a man aged 47 years and of good constitution, complained of pain in the hand and of a pustular eruption on face, arms and hands of four days duration. Family history is negative. Two years ago he had acute articular rheumatism and was in the hospital for several weeks. He drinks a little but uses no tobacco; his appetite is good and bowels are regular: he has no cough, expectoration or night sweats; he has no urinary symptoms, but has had gonorrhea. The present illness dates from two weeks ago when a horse fell on his right hand, bruising it severely. Since then he has been having it dressed

clonic and tonic convulsions and died in several hours. Controls remained well. The next day he injected another of the sensitized pigs and two more controls. This pig likewise died in several hours, while the controls showed nothing. In eight days the third pig and two more controls were injected with antipyrin. Here the sensitized pig merely had tonic and clonic convulsions and recovered, controls again showing nothing. He was also able to carry the hypersusceptibility from a pig, sensitized with the patient's serum, to another pig so that on injecting the second pig with 0.3 gm. of antipyrin he died. In a case of veronal exanthem and also in a case of hydrargyrum susceptibility he was unable to passively transfer it to guinea pigs. He concluded that it was because the exanthems were not explosive enough in character.

at the surgical dispensary. For about 10 days he has been feeling rather weak and apathetic with more or less headache. Four days previous to the taking of this history the patient was given a prescription containing potassium iodid in such proportions that he was getting 6.0 gms. a day. Within a day the patient noticed a reddening of the skin, coryza, and conjunctivitis and in four days he presented himself again at the dispensary because of a pustular eruption on the face, arms and hands, together with nausea, and pain in the back. The history and picture presented was much like that of a variola and Dr. Henry A. Becker, on whose service the patient was, asked Dr. W. T. Corlett to see him. A diagnosis of potassium iodid rash was made and the patient was

TABLE I.

Pig No. Weight	First Injection	Inter- val	Second Injection	Symptoms
1 325 gms.	5 c. c. serum A	24 hours	5 c. c. of 50% sol. KI	Was rather restless after the injection, later quieted down and showed some paralytic symptoms after 2 hours. In 4 hours very apathetic, unable to stand and died in 12 hours.
2 300 gms.	5 c. c. serum A	24 hours	4. c. c. of same	Very restless after injection, jumping up and down. Scratched at face in 20 minutes. Later very apathetic, partly paralytic, respirations irregular and died in 95 minutes.
3 300 gms.	5 c. c. serum of normal patient	same	same	Outside of abnormal quietness following injection, appeared normal. Gradually weakened and died in 3 days.
4 375 gms.	none	none	5 c. c. of same	Restless in one hour, then laid down on side. Apathetic and died in 6 hours; there being some symptoms of paralysis.
5 375 gms.	none	none	same	Very restless and attempted to bite spot of injection. Cried out. In 2 hours listless and hind legs were unstable. By next day he was stable once more and lived for two days.
6 420 gms.	5 c. c. serum A	two weeks	8 c. c. of 5% sol. KI	Appeared about normal for nearly a day, then began to weaken, was unable to stand and died in 24½ hours.



sent home for two days with no medicine and told to come back for admittance to the hospital at the expiration of that time. Examination notes made then are as follows: On the extensor surface of the right arm, ulnar edge of left arm, forehead and left side of face there are numerous shotty pustules varying in size from 0.5 to 1.0 cm. in diameter and in all stages of formation. The entire skin of the body shows a moderate erythema and blotching, while the vasomotor tone is poor. On both palms there are several areas resembling commencing pustules. Temperature is 100.8° F. and pulse 96. Glands are generally enlarged. Otherwise examination negative. A biopsy was made of two of the pustules and the patient sent home. He returned to the hospital in three days and was admitted on the service of Dr. W. T. Corlett. At the time only a few dried up pustules remained to show the former condition. On once more exhibiting the potassium iodid, the patient reacted as before with a coryza, conjunctivitis, headache, and general erythema, which became pustular. On December 4, 1910, 100 c. c. of blood was removed from his arm and after standing for 24 hours 5 c. c. of the serum was injected subcutaneously into guinea pigs No. 1, 2, and 6. Blood was also taken from a normal man and 5 c. c. of his serum injected into pig No. 3. Pigs Nos. 4 and 5 served as controls. Pigs Nos. 1 to 5 in 24 hours received 5 c. c. of a 50% solution of potassium iodid subcutaneously while No. 6 was not injected for two weeks.

The dose of iodid used was very large and invariably caused an intense edema at the site of injection from hypertonicity of solution. So in all succeeding experiments a 5% solution of the iodids was employed. It will be seen from the table that pig No. 2, and possibly No. 1, had symptoms that could be construed as akin to anaphylaxis, though one of the control animals, No. 4, died before No. 1. Pig No. 6 showed nothing after an incubation period of two weeks between the first and second dose, but this is as one would expect if there is anything in the reaction; for in two weeks the passive sensitization would have worn off. However, the dose of potassium iodid used having been so large that the results were not felt to be conclusive, two weeks later another 100 c. c. of blood was removed from the Patient A, his iodid having been stopped in the meantime.

Another patient with an iodid rash came under my observation about the same time and I give his history and chart the results found in the same table with those of Patient A.

Patient B, a man aged 33, was kindly turned over to me for investigation by Dr. John Phillips from the Lakeside Hospital Medical Dispensary. The complaint is swollen testicle and eruption on the legs. His family history is negative. Thirteen years ago he had acute articular rheumatism and seven years ago he had a chancre on his penis, with gonorrhea

at the same time. Several weeks later he had an eruption on the body with sore throat. Patient frequently has sore throat, he coughs somewhat, and has night sweats. There has been loss of weight, his appetite is good and bowels are regular. He has no urinary symptoms. He is troubled with shortness of breath and palpitation of heart.

Present illness:—About two months ago he began to notice a swollen rather painful testicle and came to the dispensary. Patient was found in a bad condition from mitral disease and was referred to the hospital. Later, on returning to the dispensary, his Wassermann reaction, done by Drs. R. Dexter and C. L. Cummer was strongly positive. Potassium iodid, grains ten three times a day, was ordered for his swollen testicle. However, after he had taken three doses he noticed a petechial eruption on the inside of the legs and thighs. Otherwise he felt well. A sample of 100 c. c. of his blood was also removed. His idiosyncrasy to potassium iodid was later confirmed by its exhibition a second time.

Six guinea pigs were injected, each with 5 c. c. of serum from patient A, but as two of them died before the injection of iodid, only four were used. Three pigs were injected, each with 5 c. c. of serum from patient B and one was treated with 5 c. c. of serum from a man affected with aortic disease who had been taking potassium iodid 2.0 gms. thrice daily for six months and who was not susceptible. In 24 hours all the pigs were injected subcutaneously with 1.0 gm. to the kilo. of either potassium iodid (KI) or of sodium iodid (NaI), as a 5% solution. The sodium salt was used on Dr. T. Sollmann's suggestion to see if the action, if any, were due to the iodine ion or to the metallic ion.

TABLE. II.

Pig No. Weight	First Injection	Inter- val	Second Injection	Symptoms
7 350 gms.	5 c. c. serum A	24 hours	7 c. c. of 5% sol. KI,	Pig very restless after injection, scratched at cage, jumped up and down. In 15 minutes no further symptoms and alive 5 days later.
8 410 gms.	same	same	9 c. c. of 5% sol. NaI	Outside of slight restlessness he showed no symptoms and was alive 5 days later.
9 230 gms.	4. c. c. serum A	same	4.5 c. c. of 5% sol. KI	Was quiet for 15 minutes, then fell over on side panting. Tonic convulsions in 18 minutes. Later recovered somewhat but was very apathetic and died between 11 p. m. and 8 a. m. Was injected at 11:30 a. m.
10 320 gms.	5 c. c. serum A	same	6 c. c. of same	Ate a little after injection, later listless and in 2 hours fell over on side. No other symptoms and was alive 5 days later.



11 460 gms.	5 c. c. serum B	same	9 c. c. of same	At no time did he show any symptoms.
12 230 gms.	4. c. c. serum B	same	4.5 c. c. of 5% sol. NaI	Showed no symptoms for 7 hours when he fell out of cage. Later he was rather listless and died in 26 hours.
13 235 gms.	4. c. c. serum B	same	4.5 c. c. of 5% sol. KI	In 25 minutes restless, one hour unstable falling over and struggling. In 80 minutes bucked up and down and from then on dyspneic, lying on side and struggling at times. Death in 9 hours, 35 minutes.
14	4. c. c. serum A			Died within 24 hours; cause unexplainable; autopsy negative.
15	same			Died within 24 hours; cause unexplainable; autopsy negative.
16 370 gms.	5 c. c. serum patient taking KI, 2.0 gms. t. i. d. for 6 months	same	6.5 c. c. 5% sol. KI	At no time were there any symptoms.
17 230 gms.	none	none	4.5 c. c. of same	No symptoms.
18 220 gms.	none	none	4. c. c. of same	Rather listless after injection, otherwise showed nothing. Alive 5 days later.
19 220 gms.	none	none	4. c. c. 5% NaI	Normal for 2 days then weakened and died in 3 days.
20 190 gms.	none	none	3.5 c. c. of same	No symptoms.
21 360 gms.	none	none KI	7 c. c. 5%	Slightly listless following injection but alive 2 days later.

From the preceding table it will be seen that pig No. 9 injected with serum from A and pig No. 13 with serum from

B showed very acute symptoms while pig No. 7 receiving serum from A had slight symptoms though they might be ascribed to the irritant action of the potassium iodid. None of the normals showed any symptoms and the pig injected with serum from the man with aortic disease had no symptoms. It is rather significant that the pigs injected with sodium iodid appeared to be little affected and more work should be done in this connection to see which ion is concerned in the reaction, if it may be called a reaction. Unless otherwise stated the pigs were alive at end of five days.

The opportunity presented itself of still further carrying out our research in the person of patient D, a man aged 20. This man presented himself at the Lakeside Hospital skin clinic complaining of a general skin rash of one day's duration. Patient has had measles, otherwise always well. Uses no tobacco or alcohol. Appetite is good, bowels regular, no cough or expectoration. About two weeks ago he had a gonorrheal infection and for one week he had been taking a patent medicine internally. The night before coming to the clinic he had a severe itching of the skin with a general eruption. No coryza, sore throat or malaise. On examination patient was well nourished and developed. The entire body was covered with a discrete and in places confluent morbilliform eruption, together with an erythema of the whole skin. No conjunctivitis, Koplik spots, or sore throat. There was no rise in temperature. General glandular enlargement was found. Lungs and

TABLE III.

Pig No. Weight	First Injection	Inter- val	Second Injection	Symptoms
22 470 gms.	5 c. c. serum patient D	24 hours	1 c. c. of 10% copaiba	Never any symptoms and alive 2 days later. Urine showed only a few triple phosphates.
23 445 gms.	same	same	0.5 c. c. of same	No symptoms.
24 305 gms.	5 c. c. serum normal patient	same	same	No symptoms.
25 340 gms.	none	none	same	Very restless following injection. Otherwise normal.
26 505 gms.	none	none	1.0 c. c. of same	Rather quiet after injection. Otherwise normal. Urine negative.



heart were normal. A diagnosis of copaiba rash made by Dr. W. T. Corlett. The patient was given an ointment to be used externally, the medicine was stopped and he was told to return in two days. On his return the eruption was nearly gone and there was a slight desquamation of the skin. To clinch the diagnosis the patient was given capsules containing copaiba, grains ten, one to be taken thrice daily for two days. He appeared at the clinic two days later with an intense reaction and 100 c. c. of his blood was removed. Five c. c. of the serum from this was injected into each of two guinea pigs while a third pig received serum from a normal man and two other pigs served as controls. A 10% solution of copaiba in olive oil was used for the second or toxic dose.

None of the pigs showed any symptoms and they were all alive two days later. Urine examinations revealed no nephritis and possibly this is an indication that no copaiba was absorbed, since it is very irritant to the kidneys.

#### CONCLUSIONS.

In all pigs dying, a careful macroscopic and microscopic examination revealed nothing internally but a general congestion. In the guinea pigs in which potassium iodid or sodium iodid was used there was always an intense local edema at the site of injection, due to the use of the hypertonic solutions. Pigs showed no hemorrhages or edema of the lungs. Stomach walls revealed no hemorrhages and there was no fatty change in the heart muscle.

From careful study of my three tables of experiments it must be admitted that four or possibly five of the pigs died in a sudden, acute manner that is quite unexplainable, for example No. 9 in Table II, while none of the controls showed such symptoms. To say that such symptoms are due to anaphylaxis, however, raises a question whose solution requires still further investigation by means of carefully controlled experiments. I will entirely agree with Bruck and Klausner in their contention that tuberculin exanthems are due to anaphylaxis and that the hypersusceptibility can be passively transferred. Here we are dealing with a protein and von Pirquet<sup>27</sup> has studied the condition very carefully in his work on *allergie*. If there be a tuberculous focus present in the organism then the continuous slight stimulation from the tubercle bacilli tends to cause the formation of antibodies in the patient, with the result that, on injection of tuberculin, there is a receptor already present for the protein, resulting in a higher or lower degree of anaphylactic

reaction. As has been worked out by von Pirquet, under the following conditions only do we get no symptoms on such injections of tuberculin into the tuberculous: (1) In the first stages of tuberculosis, before the formation of sufficient reactional capability on the part of the patient. (2) In the end stage of tuberculosis, especially in older children; an indication that their reactive powers are used up. (3) In some cachectic states e. g., diabetes or carcinoma, again indicating a loss of reactive power and meaning the same as the former. (4) In the course of measles. So far the non-appearance of a reaction in this condition has not been explained; in the course of scarlet fever, on the other hand, the reaction to a tuberculin injection in a tuberculous patient is even more marked. (5) In the course of a series of treatments with tuberculin, meaning probably that the antibodies are saturated.

A drug exanthem, however, resulting from a dose of iodoform or of antipyrin can not be compared or likened to one resulting from a tuberculin injection, for they are due to the action of two altogether different stimuli. The one is a protein while the other is a definite chemical compound. So far the only instance in which immunity, a closely allied condition, has been attained by non-protein substances is in some work recently done by Ford<sup>12</sup>. Experimenting with the poisonous mushroom, *Amanita phalloides*, he has been able to extract a protein-free hemolysin, which is a definite glucosid, and to which animals may be immunized so that 1 c. c. of a 1 to 1000 solution will neutralize one hemolytic unit.

We grant that certain people are very susceptible to the exhibition of some drugs, but it is a long step to call such a susceptibility an anaphylaxis. Further work by means of experiments better planned and more closely controlled than those of Bruck and Klausner must be done before the anaphylactic nature of the reaction, which may follow injections of none-protein substances, can be considered established. The autopsy findings in all of Bruck's, Klausner's, and my guinea pigs were invariably negative, especially as to the emphysematous, non-collapsible condition of the lungs which is one of the especial features of the condition. Moreover, lethal doses of the drugs, such as were generally employed by Bruck and Klausner, and by me in my first series of experiments, should not be used,



even in passive anaphylaxis. As has been said before, if there is anything in the reaction, it will be interesting to find out the part taken by each ion of the chemical in the resultant effect.

#### SUMMARY.

1. Anaphylaxis is an acute disturbance of metabolic activities of vital cells and may be brought on by the second injection of a protein, after a suitable incubation period following the first injection of the same protein. Proteins are required, though leucin and tyrosin appear unable to cause the reaction.

2. Anaphylaxis and anti-anaphylaxis or immunity are closely correlated conditions, as antiphylactic antibodies can be passively transferred in the blood serum of an animal, affected with either condition, to another animal.

3. Ford has lately been able to immunize animals to a hemolytic glucosid derived from the poisonous mushroom, *Amanita phalloides*. This is the first instance in which a substance outside the proteins has been successfully used.

4. As shown by von Pirquet and others, the reaction of a tuberculous organism to an injection of tuberculin is an anaphylactic phenomenon. There may be rise of temperature, malaise and even generalised skin eruption. Bruck, Klausner and others have been able to passively transfer this hypersusceptibility to guinea pigs so that the pigs will react to a following injection of tuberculin, given in from 24 to 48 hours, with typical anaphylactic symptoms.

5. Bruck thinks that skin eruptions due to the exhibition of drugs with definite chemical formulae are anaphylactic phenomena. He was able to passively transfer such hypersusceptibility from a man with an iodoform rash and from a man with an antipyrin rash to guinea pigs so that the pigs reacted 24 hours later, on injection of the corresponding drug, with marked anaphylactic symptoms. In the latter case the man had such marked susceptibility to antipyrin that he had taken none for 16 years.

6. Klausner working with a case of iodoform eruption and with several cases of potassium iodid eruptions also found that a passive transference of this hypersusceptibility to guinea pigs was possible. The pigs reacted to injection of the drug causing the susceptibility with anaphylactic shock. Normals of both men showed nothing. The investigations of both workers, how-

ever, should have been more carefully controlled, more animals used, and toxic doses of the drugs should not have been employed. Solutions also should not be too strongly hypertonic, because of the resulting edema at the site of injection.

7. We have made the following investigations. In a man with an erythematous, pustular, potassium iodid rash, the blood was twice removed and serum injected into series of guinea pigs. Likewise another man with a petechial potassium iodid rash gave serum which was used to sensitize pigs. And the opportunity was given to employ the serum of a non-susceptible man who had been taking potassium iodid 2.0 gm. three times a day for six months. In the first series of investigations lethal, hypertonic doses of potassium iodid were employed for injecting the animals and consequently the results are of little value. After my first series a non-lethal, weakly hypertonic dose was used. Plenty of animals were employed both for injections and for controls. Control serum was always human. The ionic action of different metals was also tested.

8. Two at any rate and possibly four or five of my animals, following the exhibition of the drugs, died in an acute manner that is quite unexplainable. The two most acute cases were in carefully controlled animals in which a weakly hypertonic, non-lethal dose of the drug was employed. Control animals showed no such symptoms. Too few pigs were used to draw conclusions as to ionic action of sodium instead of potassium.

9. In a man with an explosive, morbilliform, copaiba rash there was no success in the passive transference of the susceptibility.

10. The results indicate that idiosyncrasy to potassium iodid can be passively transferred by serum; but the propriety of calling this phenomenon anaphylaxis is doubtful.

Only further carefully controlled investigations, with the use of non-lethal doses of drugs for injections, can show the relation of drug exanthemata to anaphylaxis.

All investigations on patients were made on Dr. W. T. Corlett's service at Lakeside Hospital, and I am under obligations to him and to Drs. Torald Sollmann, W. T. Howard and O. T. Schultz for many suggestions. Dr. H. O. Ruh collected all blood used in the experiments.



## LITERATURE.

1. Anderson, J. F. and Frost, W. H. Studies on Anaphylaxis. Bull. No. 64, Hygienic Lab., U. S. Pub. Health and Mar. Hosp. Serv., Wash.
2. Anderson, J. F. Maternal Transmission of Immunity to Diphtheria Toxin. Maternal Transmission of Immunity to Diphtheria Toxin and Hypersusceptibility to Horse Serum in the Same Animal. Bull. No. 30, Hygienic Lab., U. S. Pub. Health and Mar. Hosp. Serv., Wash.
3. Auer, J. and Lewis, P. A. Demonstration of the Cause of Acute Anaphylactic Death in Guinea Pigs. Proc. Soc. Exp. Biol. and Med., VII, 29.
4. Arthus, M. La Séro Anaphylaxiè du Chien. Archiv. Internat. de Physiol., IX, 178.
5. Arthus, M. La Séro Anaphylaxiè du Lapin. Idem, IX, 156.
6. Alphen, A. J. S. Anaphylaxiè. Centralbl. f. Bakt. etc., 1910, I Abt., Orig., LVII, 242.
7. Bauer, J. Die passive Uebertragung der Tuberkuloseüberempfindlichkeit. Münch. med. Wochenschr., 1909, No. 24, 1218.
8. Biedl, A. and Kraus, R. Experimentelle Studien über Anaphylaxie. Wien. klin. Wochenschr., 1909, No. 22, 363.
9. Bruck, Carl. Die Arzneiexantheme, experimentelle Untersuchungen über das Wesen. Berl. klin. Wochenschr., 1910, No. 12, 517.
10. Bruck, Carl. Weitere Untersuchungen über das Wesen der Arzneiexantheme. Idem, 1910, No. 42, 1928.
11. Doerr, R. and Raubitschek, H. Toxin and anaphylaktisierende Substanz des Aalserums. Berl. klin. Wochenschr., 1908, No. 33, 1525.
12. Ford, W. W. Further Observations on the Immunization of Animals to the Poisons in Fungi. Jour. Pharm. and Exper. Therap. 1910, II, 145.
13. Klausner, E. Arzneiexantheme als Ausdruck von Idiosynkrasie und Anaphylaxie. Münch. med. Wochenschr., 1910, No. 27, 1451.
14. Klausner, E. Arzneiexantheme und Ueberempfindlichkeit. Idem, 1910, No. 38, 1983.
15. Metchnikoff, Elie. L'Immunité. Masson & Cie., Paris, 1901, 124.
16. Pearce, R. and Eisenbrey, A. B. Anaphylactic Shock in the Dog. Proc. Soc. Exper. Biol. and Med., 1910, VII, 30.
17. Richet. De l'anaphylaxiè en general et de l'anaphylaxiè par la mytilocongestine en particulièr. Annal. Inst. Past., 1907, XXI, 497.
18. Rosenau, M. J. and Anderson, J. F. A Study of the Cause of Sudden Death Following the Injection of Horse Serum. Bull. No. 29, Hygienic Lab. U. S. Pub. Health and Mar. Hosp. Serv., Wash.
19. Rosenau, M. J. and Anderson, J. F. Anaphylaxis. (Harvey Lecture). Archiv. Int. Med., 1909, III, 519.

20. Rosenau, M. J. and Anderson, J. F. The Specific Nature of Anaphylaxis. Jour. Inf. Diseases, 1907, IV, 552.
21. Schenk, Ferd. Ueber den Uebergang der Anaphylaxis von Vater und Mutter auf das Kind. Münch. med. Wochenschr., 1910, No. 48, 2514.
22. Schultz, W. H. Reaction of Smooth Muscle of the Guinea Pig Sensitized with Horse Serum. Jour. Pharm. and Exper. Therapeut., 1910, I, 549.
23. Sellei, Joseph. Ueberempfindlichkeit bei Psoriasis vulgaris. Wien. klin. Wochenschr., 1909, No. 34, 1183; also No. 35, 1216.
24. Siegheim. Ueber Satinholzdermatitis. Berl. klin. Wochenschr., 1909, No. 45, 2020.
25. Smith, H. L. Buckwheat Poisoning. Archiv. Int. Med., 1909, III, 350.
26. Vaughn, V. C. and Wheeler, S. M. The Effect of Egg White and its Split Products on Animals. Jour. Inf. Diseases, 1907, IV, 476.
27. Von Pirquet, C. Allergie. Ergebn. der inn. Med. und Kinderheilkunde, 1908, I, 420; also 1910, V, 459.
28. Quoted by Weaver, G. H. Serum Disease. Archiv. Int. Med., Vol. 3, 1909, III, 485.
29. Wechselmann. Ueber Satinholzdermatitis, eine Anaphylaxie der Haut. Deut. med. Wochenschr., 1909, No. 32, 1389.
30. Wells, H. G. Studies on the Chemistry of Anaphylaxis. Jour. Inf. Diseases, 1908, V, 449.
31. Bauer, J. Die passive Uebertragung der Tuberkuloseüberempfindlichkeit. Münch. med. Wochenschr., 1909, No. 24, 1218.

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### Report of a Case of Icterus Gravis Following Confinement at Term.

By H. J. LEE, M. D., Cleveland.

Acute yellow atrophy of the liver is a very rare disease, so rare that one man sees few cases. Even in hospital practice it is very rarely seen. Dr. F. W. White of Boston has reported four cases that came under his observation between 1901 and 1908. His article in the *Boston Medical and Surgical Journal* of 1908 is a very interesting one. Very little is known about the cause of the condition and various causes have been assigned. The fact that a majority of cases occur in women and a very large proportion during pregnancy supports the theory that the disease is toxic in its origin. The case I saw in 1885 occurred in a woman

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*Read before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, April 7, 1911.*



after delivery at about the eighth month. When the disease occurs during pregnancy it is usually between the fourth and the seventh month, though a number of cases have been reported occurring after labor at term. As pregnancy is apt to disturb the functions of the liver and predisposes to degenerative changes, it is readily seen why so many cases occur during pregnancy as the result of a toxemia that results from these degenerations. Minkowski says that every jaundice, no matter what its cause, may in its further course lead to hepatic insufficiency and terminate in icterus gravis. He further says that nearly all pathogenic microorganisms may occasionally produce an outbreak of malignant or benign jaundice, so that we have no more reason to regard an essential icterus gravis or a primary acute yellow atrophy of the liver as a definite specific disease than the case of a simple jaundice. The resistance of the organism is probably the determining factor as to the development or non-development of the former condition.

Chloroform anesthesia has sometimes been followed by icterus gravis and is given as one of the causes of acute yellow atrophy of the liver. These cases are described under the head of delayed chloroform poisoning. H. G. Wells in *Archives of Internal Medicine* says: "The cases of delayed chloroform poisoning described in the literature tend to group themselves in two classes. In one, which affects chiefly children, the symptoms are acetonemia without jaundice, and the changes in the liver are not marked, consisting chiefly of fatty degeneration about the periphery of the liver lobules. The other type occurs in young adults and is marked by profound jaundice, cholemia, hemorrhages and the symptom-complex of rapidly fatal acute yellow atrophy of the liver. Histologic study of cases of the second type discloses a condition very similar to that of typical cases of acute yellow atrophy." Wells thinks, however, that it is better to reserve this latter term for that form of liver necrosis and autolysis which occurs "idiopathically" and which presents certain features differing from chloroform necrosis, puerperal eclampsia and phosphorus poisoning and which is possibly due to some specific cause. In the cases that have been reported as delayed chloroform poisoning or chloroform necrosis the amount of chloroform given seems to have no bearing upon the severity of the case. As many have occurred after small as after large amounts of anesthetic. The

case that I saw in 1885 had had no chloroform administered. The subject of this report had had a considerable amount of chloroform, and yet the symptoms in each case were very similar, and I feel certain that autopsy would have shown similar conditions present.

Rolleston says: "Chloroform anesthesia has in most exceptional instances been followed by acute yellow atrophy of the liver. Chloroform has a toxic effect on the liver cells but it is so rarely seen in practice that additional factors such as sepsis and diminished resistance of the liver must be necessary to explain the occurrence of acute yellow atrophy of the liver after the administration of chloroform."

The subject of this report first consulted me on July 1, 1907, when she was about six weeks advanced in her first pregnancy, her last menstrual period having occurred May 2. She was 34 years old and always enjoyed good health, not having been ill since childhood. She had only slight nausea since becoming pregnant and expressed herself as feeling very well. She spent the summer at the sea shore, returning home early in October. Examination of the urine at that time was negative; condition of health excellent, had felt motion about the middle of September. Urine was examined every two weeks and report was always negative. On December 21 I was called to see her and found her suffering with a very severe attack of influenza; temperature  $104^{\circ}$  accompanied with severe muscular pains, headache and very sore throat. She was given the ordinary treatment for such conditions; calomel in the beginning, followed by aspirin and quinin. Temperature continued to run high for fully a week when it subsided leaving patient in condition of extreme prostration, from which she had not recovered when labor came on. At no time were there signs of any pulmonary complications. Her appetite remained poor and she looked very pale. Examination of urine, however, showed nothing.

Labor came on about midnight of February 8, 1908. The first stage was very slow, the position being an occiput-posterior, and it was 48 hours before dilatation was complete. Head came down nearly on the perineum when progress ceased and there was no attempt at rotation. After waiting two or three hours and no progress being made, forceps were applied and an attempt made to rotate the head but without success. The instrument would rotate around the head very easily, but the head remained stationary. After several attempts had failed, and not being able to discover the cause, delivery was accomplished without rotation. A moderate laceration of the perineum occurred. The cause of the inability to rotate the head was found to be in the position of the hands; the fingers of each hand were resting on the cheek of the corresponding side, and I had not been able to discover the cause of the difficulty. The third stage was short and normal; hemorrhage was profuse but not



alarming. The laceration was repaired and patient seemed to be in good condition. The delivery and repair of the laceration had consumed nearly an hour and a half, and a considerable amount of chloroform had been given. Recovery from the anesthesia was slow. I saw her about six hours after delivery. She had at that time a slight rise of temperature,  $99.4^{\circ}$ ; hemorrhage had been rather free; patient looked quite pale but pulse was good. She had slept most of the time since delivery, had vomited twice and when awake complained of nausea; slept during the night but vomited in the early morning; slight streaks of blood were noticed in the vomited matter. Patient refused food because she said she would vomit if she took it. She complained of no pain but was quite drowsy; temperature did not rise above  $99.4^{\circ}$  during the first day after delivery. Urine was scanty and of a high color. Patient was encouraged to drink water freely to which sodium bicarbonate was added, as she complained of sour stomach, and a good deal of this was retained. On the evening of the second day there was noted a sweetish odor of the breath, somewhat resembling the odor of chloroform; also a slight jaundice was noticed. The bowels had moved with the aid of an enema and the movement was described as quite dark in color. Temperature was normal. On the morning of the third day the patient was decidedly yellow; had not been able to take anything but the soda water; had vomited a little once or twice; vomited matter still slightly streaked with blood. Urine examined and found to contain no albumin, but was highly concentrated. No test for bile pigment was made. Bowels were moved on the evening of the third day. The movement was dark and of a foul odor. Evidently blood was contained in the stool. Temperature normal all this time. Patient was very apathetic and inclined to sleep; could be roused easily but would immediately fall asleep again; did not incline to talk except to answer questions. On the morning of the fourth day she was more deeply jaundiced and at times delirious. From this time she sank into a comatose condition and gradually grew weaker until death occurred which was at the close of the fourth day after delivery. Examination of the urine showed bile pigment but no leucin nor tyrosin. The area of hepatic dullness seemed to be markedly decreased, especially in the axillary line. No autopsy could be obtained.

This case presents the symptoms and history of acute yellow atrophy of the liver, but there being no autopsy that diagnosis could not be verified. In May, 1885, I saw in consultation a case of icterus gravis which proved fatal on the sixth day of the disease. The autopsy showed a liver of about one-half the normal size and of a brownish red color. No microscopic examination was made.

*1925 East 84th St.*

# The Cleveland Medical Journal

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## EDITORIAL

### The Sixty-Sixth Annual Meeting of the Ohio State Medical Association.

This meeting will be held here on May 9, 10 and 11, upon invitation of the Academy of Medicine of Cleveland. The Council of the Academy appointed a Committee of five to make arrangements for this event. This committee have secured the Chamber of Commerce Hall, where the scientific and commercial exhibits will be grouped, leaving the center of the floor space to be used as a lounging room and general rendezvous for the attending members.

The Committee are confining the Commercial Exhibits to purely ethical preparations, e. g., those accepted by the Council



of Pharmacy and Chemistry of the American Medical Association.

At the Chamber Hall will also be found the places for Registration, Post-Office, Information, Check Room, etc. The main entrance to the meeting places will be through the Chamber of Commerce, across a short alley into the Engineers' Building, where the auditorium and other rooms have been secured for the various Sections.

Especial effort is being made to have an unusual, interesting and instructive scientific exhibit. Letters have been sent to all County Societies for rare specimens of pathological significance. On Tuesday evening, May 9, an informal smoker will be held in the Chamber of Commerce Hall, to which only members of the Ohio State Medical Association will be admitted. Our guests for this evening will be the Orchestra and other members of the Hermit Club, who will furnish the entertainment for the first part of the evening; the second part will be for refreshments and for the renewal and making of acquaintances.

On Wednesday evening, May 10, the Annual Banquet will be held at The Hollenden Hotel. The price for tickets will be \$3.00 a plate for all who wish to attend. The tickets are to be secured at the time of registration at that office in the Chamber Hall.

Ample arrangements have been made for the entertainment of the ladies attending the Convention.

Each member of the Academy of Medicine of Cleveland was sent a letter in accordance with instructions from the Council, acquainting him with the fact that all had been assessed the sum of \$5.00 to help defray the expenses of the meeting. Our Academy has over 500 members, letters were mailed to all early in March, but until recently replies had been received from not quite 200. The committee feels that every member should take a personal pride in the arrangement for and entertainment of the State Association, whom we have invited to be our guests. It is, therefore, very necessary that checks should be in the hands of J. F. Hobson, 1721 Prospect Avenue, Chairman of the Finance Committee, not later than the first of May. The Committee feels confident that many members not yet heard from have simply procrastinated and we trust this appeal will be all that is necessary.

Every member of the Academy will have attached to his button a ribbon with "Cleveland" upon it, in order that visitors may turn to him at any time for information and advice. Therefore each member of the Academy constitutes one of a Committee of Reception and Orientation. This is our opportunity to be hosts and we trust each member will feel his individual responsibility and act accordingly, thereby greatly assisting the Executive Committee.

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**Albert Rufus Baker.**

On April 5, 1911, by the death of Albert Rufus Baker the community lost a man who played an important part in the professional life and development of the city. Dr. Baker was born in Salem, Pa., in 1858, the son of Benjamin Franklin and Sabina (Pershing) Baker. He graduated from the Medical Department of Western Reserve University in 1879 and after several years' study abroad, located in Cleveland in 1884, limiting his practice to the eye, ear, nose and throat. He took a keen interest in medical education and all that would tend to elevate the standard of teaching in medical colleges. In 1888 he was appointed Professor of Ophthalmology, Otology and Laryngology in the Cleveland College of Physicians and Surgeons (at that time the Medical Department of Wooster University) and continued in this chair until his death. He was a member of the Association of American Medical Colleges and was its President in 1901: in its deliberations he took an active part and was a faithful attendant at its meetings. He did much to foster medical journalism and from 1885 to 1896 he was, with Dr. S. W. Kelly, Editor of the Cleveland Medical Gazette, and when that journal merged with the Cleveland Journal of Medicine to form the Cleveland Medical Journal he became one of the Board of Directors and was always ready with suggestion and advice to further the interests of this publication. He was Chairman of the Ophthalmological Section of the American Medical Association in 1893-94 and had been President of the Cuyahoga County Medical Society. He was a Fellow of the American Academy of Medicine and was a member of the United States Pension Examining Surgeons. He always took a deep interest in civic affairs, especially in regard to the public schools. He was Ophthalmologist to St. Alexis and Cleveland General Hospitals, was a frequent



contributor to the medical press, and highly esteemed in the profession. Dr. Baker was married in 1885 to Miss Emily L. Shackleton, who, with two sons, survive him.

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### Acromegaly and the Hypophysis.

No one, unless he belongs to that group of misguided individuals who have acquired a mental strabismus, will deny the great value of experimental methods to physiology. The effects of stimulation can be directly observed and graphically recorded in a muscle-nerve preparation. The relation of nervous and vascular mechanisms to secreting structures can be studied. The chemical composition of the secretions produced by glands can be determined and the changes set up by these secretions when permitted to act upon those substances upon which they normally act within the body can also be chemically analyzed. Such experimental investigation is direct in nature. It is possible to propose a problem and to plan the experimental research which may aid directly in its solution.

In the case of the ductless glands the investigation of their normal functions has met with greater difficulties simply because there is no direct mode of attack. Here experimentation must be indirect and many of the clues which the laboratory worker has had to follow have come primarily from the clinician. In certain clinical conditions, carefully studied during life, postmortem examination has shown involvement of the ductless glands. The clinician noted the symptom-complexes which are more or less characteristic of goiter, of tetany, of Addison's disease, of diabetes, of acromegaly. In these cases the pathologist then described lesions in the thyroid, the parathyroids, the adrenals, the islands of Langerhans, the hypophysis. The physiologist attempted to explain the normal functions of these ductless glands by a study of the abnormal or pathological physiology which had existed. Then by experimentation, by the operative removal of one or the other of the healthy ductless glands, he was able to gain, in an indirect way, further knowledge of their normal functions by noting the results which followed the absence of their normal products. It is because the experimental attack must be indirect, because the reasoning must be from observed effect to supposed cause, instead of the other way about, that our knowledge of the normal and abnormal physiology of the ductless glands is no more definite than it is.

Bernard Fischer of Frankfurt a/M has recently summarized (*Frankfurter Zeitschrift für Pathologie*, V, 1910, 351-393, 585-641) the many observations, clinical, pathological and experimental, which bear directly upon the relation of lesions of the hypophysis to acromegaly and more indirectly upon the normal function of this organ. Those familiar with Fischer's earlier work upon acromegaly can foresee the conclusions to which he must come. He attempts first to exclude, by showing their inadequacy, those theories of the causation of acromegaly which do not take into consideration the hypophysis. Convinced that in the latter organ lies the cause of the disease he recapitulates those theories which make alterations in the hypophysis responsible for the disease; excludes hyposecretion, pressure of an enlarged gland upon a supposed growth center in the base of the brain and the presence within the gland of misplaced chorda cells which give rise to tumors; and both directly and by exclusion concludes that only hypersecretion upon the part of the gland will explain acromegaly. In order for him to make his point it is necessary for him to decide that adenoma of the hypophysis is the only tumor regularly associated with acromegaly; that in those cases of undoubted acromegaly in which tumors of another nature are described either the histological diagnosis is wrong or the primary adenoma has given way to a tumor of another sort, and only the primary adenomatous change is to be brought into relation with the disease; and, finally, that those cases of acromegaly in which tumor of the hypophysis can certainly be excluded, are not acromegaly. One way to prove a theory is to make every observation fit the theory. Apparently Fischer has succeeded in doing this, but whether correctly or not remains to be determined.

But even granting that acromegaly is always associated with hyperplasia of the hypophysis and only with hyperplasia, that alone will not prove that the increased skeletal growth is due to hypersecretion, to an increased amount of normal gland products. We are beginning to realize that exophthalmic goiter, although it may be associated with a very marked hyperplasia of the thyroid, is not the expression of an increased amount of normal thyroid secretion, of a real and actual hyperthyroidism, but rather that the glandular change is the purposeful attempt to compensate for a deficiency. Fischer's logic is proper if one



grants his basic premise, namely, that a microscopically determined increase in secreting tissue is proof of an increased amount of secreted normal material. His facts follow one another in orderly sequence but neither he, nor anyone else, has established the correctness of the starting point. Possibly the hyperplastic hypophysis of acromegaly does produce an increased amount of secretion which is responsible for the changes that characterize the disease. But it is equally possible that the hyperplasia is a compensatory process which attempts to overcome some metabolic deficiency or perversion.

O. T. S.

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### Infection of the Urinary Tract in Children.

One of the most puzzling problems that confronts a physician is to determine the cause of continued fever in a sick child. An examination of the urine—a catheterized specimen if necessary—should never be neglected. It is surprising how frequently, especially in girl babies, an infection of the urinary tract will be found. In 121 cases, reported by Jeffreys (*The Quarterly Journal of Medicine*, April, 1911) from the Hospital for Sick Children, Great Ormond Street, 67 were due to coliform organisms, 37 to staphylococcus, 10 to streptococcus, three to pneumococcus, and four to other organisms. Of 60 cases reported by the same author 53 were in females and 7 in males. This preponderance of cases in the female sex, together with the fact that the infection of the urinary tract often follows bowel trouble of one kind or another, suggests strongly an ascending infection from the urethra, the genitalia being soiled from the napkins. Another possible cause is by the lymphatics from the bowel. The right kidney is much more frequently infected than the left and the lymphatic connection between the former and the ascending colon, cecum, and appendix is very close. This Jeffreys believes occurs quite commonly and he quotes a number of cases which seem to bear out his contention. A third mode of infection is by the blood stream but this certainly must be quite rare.

The common symptoms are fever, pain manifested by crying especially on micturition, increasing pallor, vomiting and diarrhea. Occasionally the symptoms are such that the diagnosis of meningitis is considered. It has been the writer's personal

experience, twice during the past winter to see two babies in consultation where the attending physicians considered the probability of meningitis, and on catheterization a turbid urine was found. The amount of pus in the urine varies considerably from day to day. Occasionally there may be very few pus cells, but many bacteria are noted.

Infection of the urinary tract in children must not be looked upon as a trivial complaint, as the average mortality is about 10%. The treatment consists in the administration of alkalis, urinary antiseptics, the best of which is urotropin, and in some cases local treatment to the bladder. It is very important to treat the bowel condition. In stubborn cases the writer has seen good results from the vaccine treatment.

J. P.

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### The Aim of the Modern Hospital.

The nineteenth century brought with it an entire revolution in medical thought. The discoveries of Lister and Pasteur, and the investigations which followed, opened up an entirely new field for advance, and led directly to the development of modern surgery. The multifarious observations on methods of combatting bacterial infections had two great and fundamental results, the one centered the thoughts of workers on the perfecting of aseptic surgery, the other pointed out the need for hospitals where such surgery could be practised after the most approved methods. The days of hospital gangrene, of puerperal septicemia, of general putrescence, whenever wounds or openings in the body covering occurred, passed slowly away, and became historic horrors along with the sufferings of those who had to be manipulated for this or that without the saving oblivion of anesthesia.

The effect of this new knowledge on hospital architecture and hospital management was profound. Light, air and cleanliness came where darkness, stench and filth had been. Operating rooms, sterilizing rooms, places for dealing with "clean" and "dirty" cases followed one after the other. As surgery advanced the hospitals where good surgery was done advanced also, until the surgical wards of most of the large hospitals in this country were models of method, cleanliness and organization. The tremendous interest in surgery, the great increase in the number of



surgical patients, made the surgical divisions by far the most alluring and important part of our general hospitals. During this period of surgical advance, the medical wards did not increase in size nor in activity. Occasional new diagnostic methods were practised, more and more the wards were used for the intimate teaching of the students, but on the whole the medical wards in most hospitals have been a necessary, though slow going, adjunct. To be a "great surgical hospital" has been the proudest boast of most of our great institutions.

The pendulum has swung as far as it can, and is swinging back. Recently great advances have been made along the lines of internal medicine, in the more careful analysis of the deeply underlying problems of disease. The last ten years have shown a great increase in the knowledge of abnormal metabolic processes and of the abnormal physiology associated with pathological conditions. New methods for the study of disease have arisen. Biochemistry, physical chemistry and physiology are becoming more needed day by day in the elucidation of the broader problems of modern pathology. New methods of treatment have arisen, based on this new knowledge. Up to the present the bulk of this work has been done in laboratories at a distance from the hospital, or patients have been transported to the laboratories for study and returned again to the clinic, a tedious and cumbersome procedure. It is becoming evident that a hospital to be in the advance guard of medical progress, cannot be satisfied with an active surgical service, and a medical division of the "purge-and-puke," "pill-and-powder" vintage. It must have in connection with its medical wards laboratories where the most advanced methods of clinical investigation may be carried out, not tucked away in some out of the way corner of the hospital, but within easy reach of the wards. The medical wards should have a complete laboratory for chemical, bacteriological and physiological observation, just as much as the surgical wards should have their operating suites. In no other way can real clinical observation be carried on today. The days of the tabulation of symptoms and signs, as judged only by the eyes, ears and fingers of the observer, have served their day and passed. Clinical observation means all this in

conjunction with the more minute study which the great advances in pathological physiology have made possible. To those who believe that all this is as necessary a part of a hospital today, as was a sterilizing plant and an operating room 20 years ago, such an arrangement seems possible, and greatly to be desired; to those who still believe that all the facts necessary for the advancement of our knowledge of disease can be gleaned by the eyes, ears, fingers and the microscope, this cry for more complete equipment and larger scope of work is hailed as the ranting of the unsound. Such men, and their name is legion, hold the same position now that the scoffers at the "germ theory" held 30 or 40 years ago.

In the fall of 1910, the Rockefeller Hospital was opened in New York, for the study of disease. Perfect from the point of view of modern hospital construction; supplied with laboratories and appliances so that the searchlights of modern knowledge may be focussed on the obscure problems under consideration; manned by a keen staff of men trained in modern clinical medicine, quite as at home by the bedside as in the laboratory, able to do everything for the patient from the physical examination to the most complex laboratory investigations, it stands as the greatest institution for clinical research in this country. The staff is sufficient, so that no man need be rushed and crowded by a senseless mass of routine. The patient is studied, the condition elucidated and the treatment planned with equal care and attention to detail. The eyes of the thinking medical world of this country are turned toward this new hospital, with hope and with expectation. It is a great move in the right direction, and as such should be greeted as pioneer and guide. The day will come when each hospital will have facilities for such clinical study of cases, will have its staff of well trained and brilliant young minds, working under the leadership of some worker of mature judgment and great experience. The united efforts of such a combination of facilities and individuals will produce work of untold value to the patients, the community and to the profession. To the community which makes the beginnings of such work, will come the award of gratitude of future generations of physicians and of laymen in this great land of ours.

R. D.



## Department of Therapeutics.

Conducted by J. B. McGEE, M. D.

**Digitalis:** Arthur R. Cushing, in the *American Journal of the Medical Sciences* for April, considers the therapeutics of digitalis and its allies. He believes that too often the diagnosis of cardiac abnormality, the discovery of a murmur, is regarded as an immediate indication for digitalis. So that in the narrower sphere of the circulatory diseases digitalis suffers today from the same overappreciation as was its fate a hundred years ago, when to some minds it appeared to be a panacea for all internal disorders. The advance in the diagnosis of heart disease in recent years, however, gives hope that the sphere of action of digitalis may be more circumscribed, and that we may soon reach a point where instead of "trying digitalis" in every case of heart disease we may be able to define the symptom-complex which indicates its exhibition as accurately as that for quinin. In certain cases in which digitalis is pushed, an irregularity is developed, the impulses being generated regularly, but failing to reach the ventricle owing to their not being transmitted along the bundle of His. There is in fact a partial heart block. It appears to occur especially in cases in which the transmission of impulses is already impaired by disease, as indicated by the interval between the auricular and ventricular contraction being much prolonged. It may, however, be induced by digitalis, when no impairment of conductivity was detected before; while, on the other hand, McKenzie gives a case in which the conduction was very slow before digitalis, and did not seem to be further depressed by it. This failure of conduction from the auricle to the ventricle under digitalis is universally ascribed to the inhibitory action of the drug, and in fact has been seen to disappear under atropin, which removes the inhibitory action of the cardiac vagus. While Cushing is not prepared to deny that in these cases the inhibition is the potent factor in the irregularity, he is not satisfied that it is the only one.

In moderate degree the inhibition effect slows the pulse, if more marked it may lead to irregularities, or at any rate favor their development. The efficacy of digitalis and its allies in disorders of the heart arising from auricular hyperactivity is very striking, and raises the question whether the chief usefulness of the drug does not consist in its protection of the ventricle from the too exigent demands made upon it by the auricle. The question as to the respective rôles played by the inhibitory and the muscular factor in digitalis is not of theoretical interest only, for if the therapeutic effects are due to inhibition only, they might be elicited by other drugs which do not possess the unpleasant effects on the alimentary tract which present themselves under digitalis. On the other hand, if the muscular action is the essential factor, it might be possible to discover a drug possessing this without the inhibitory effects. In any case it seems desirable that we should be able to vary the proportions of these two factors, for there is no reason to suppose that digitalis presents the exact combination which is suitable in all cases. As regards digitalis, he has found again and again that the best results are obtained only by the largest doses which can be given without gastric and intestinal symptoms. There is no question that digitalis and its allies are too much feared by the medical profession. The "cumulative" action has been held over us as a bogey for so many years, that many prescriptions contain this valuable drug in harmless and useless doses. As regards the relative usefulness of digitalis, strophanthus and squill, there is little difference between them. We get the same beneficial results and the same undesirable ones as regards the heart, and a patient who shows symptoms of heart block under digitalis suffers from the same irregularity under squills and strophanthus. There is, on the

whole, rather less tendency to headache, nausea, and vomiting under strophanthus and squill than under digitalis, but the difference is not very marked, and headache is caused in some cases by all three.

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**Angina Pectoris:** In the *Medical Counsel* for April, Sir James Barr points out the indications and use of calcium in the treatment of angina pectoris as follows: In true angina of the spasmodic type there is an excess of lime in the heart muscle and also to some extent in the blood. He cites a case, seen recently in consultation, in a woman who had suffered severely for six months and at the time of consultation was having at least a dozen attacks each 24 hours. All the usual remedies had been tried with little relief, and the prognosis was considered very grave. The patient was 66 years old, and a thick-set, well nourished woman, with a pale face and anxious expression; she had an intense feeling of oppression in the cardiac region; the heart area was large and remarkably tender. The heart action was regular except for an occasional intermission; the sounds were clear except for a long rough systolic murmur over the aorta and a low pitched systolic murmur in the mitral and tricuspid areas; examination showed the calcium of the blood only slightly above Bell's unit. The treatment consisted of half a dram of dilute phosphoric acid every four hours, and plenty of acid fruits. The local hard water was interdicted. Small doses of morphin and atropin, also nitroglycerin, were continued as palliatives while pain continued. The pain rapidly disappeared. The patient was kept in bed for a month, then the acid was replaced by strychnin and strophanthus. Recovery was complete.

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**Acute Urethritis:** William J. Robinson in the *Medical Record* for April 8, reports three cases of acute urethritis of chemical origin. There is nothing strikingly original in the statement that urethritis may be of chemical origin. Everybody is supposed to know it, but still it is often forgotten. In the first case the patient, a few days after exposure, and without any evidence of discharge, injected several syringefuls of a solution of one antiseptic tablet (about 7.7 grains of corrosive sublimate) in about half a glass of water. He suffered extreme pain and was unable to urinate. He was treated by local compresses of liquor alumini acetatis (Burrow's solution); to relieve the strangury rectal suppositories of morphin and atropin sulphate were used and internally a mixture of potassium bromid, potassium acetate, arbutin, and fluid extract of triticum. He also drank frequently of cold infusion of linseed, a teaspoonful to a glassful of water, strained and flavored with lemon. Robinson states that the demulcent effect of this rather old fashioned infusion is not known as well as it deserves to be. Under this treatment prompt relief followed. The other cases were due, one to an injection of a strong solution of sulphate of zinc, the other to solution of silver nitrate. He emphasizes these points: (1) Urethritis of chemical origin is more common than is generally supposed. (2) While most cases are caused from self-administered injections prescribed by barbers, friends and others, some cases owe their origin to the overzealousness of physicians. (3) The unscientific and unjustifiable silver nitrate test, which should be forever discarded, has been responsible for very many cases of chemical urethritis. (4) The diagnosis of chemical urethritis is made by the history of the case, the freedom from discharge of gonococci, and generally its improvement on being let alone. (5) One of the most useful agents in the treatment of chemical urethritis is warm sterilized almond or olive oil, or a  $\frac{1}{2}$  to 1 percent solution of some organic iodine derivative (iodoform, dithymoliodid, isobutylorthocresoliodid) in one of the above oils. Tendency to stricture should be prevented by dilators or by sounds dipped in the referred-to solutions.



**Intestinal Antisepsis:** In the *Therapeutic Gazette* for March, Horatio C. Wood, Jr., treats of the possibility of intestinal antisepsis and the scientific evidence in its favor. The question as to whether it is possible to influence the growth of bacteria in the bowel remains one of the disputed points of therapeutics largely because of the inherent difficulties of determining accurately the relative number of intestinal bacteria. As presumptive evidence two large questions present themselves: First, is there any drug of sufficient disinfectant power to influence, in non-toxic doses, the growth of bacteria in a volume of fluid equal to that in the bowel? And secondly, is there any reason to believe that such a drug, if it exists, will remain in the alimentary tract long enough to exert its effect? As unsatisfactory as is the direct evidence concerning the possibility of intestinal antisepsis, the evidence, on the whole, seems to confirm the opinion that there is reason to hope for an influence upon the growth of bacteria. Three substances stand out strikingly as being efficient in doses which are in the limits of safety; these are, beta-naphtol, formaldehyd and creosote. Although he knows of no direct experiments regarding the rate of absorption of formaldehyd, it is probable that it is taken up with great rapidity, so that as a practical intestinal antiseptic it would not likely prove useful. Creosote, contrary to the commonly accepted opinion, is absorbed with a fair degree of rapidity. Gaillet recovered from the urine about two-thirds of a dose administered by mouth within nine hours. As however it escapes also through other channels, we may estimate that it will have entirely disappeared from the intestinal tract within this length of time, and that within three or four hours the amount which has been absorbed from the bowel will be so great that any local action is improbable. However, for the purpose of disinfecting the duodenum creosote would seem a suitable drug. Beta-naphtol requires 950 times its weight of water to dissolve it (at 77° F.), but it is probably somewhat more soluble in the contents of the bowel than in pure water. As it would probably linger in the bowel for a considerable length of time, as well as for the fact that even in a very dilute solution it exercises an antiseptic influence, it would seem to be the remedy of choice in cases in which we wish to influence the bacteria in any part of the intestinal tract below the upper duodenum.

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**Salicylates:** W. Essex Wynter in the February number of *Therapeutic Medicine (Folia Therapeutica)* states that there are many indications which show that the local application of soluble salicylate, more particularly the salicylate of methyl, may be more efficacious, especially in local rheumatic disorders, than the more usual form of administration by the mouth. He reports two cases in which pericarditis developed during convalescence from rheumatic polyarthritis although the patients were still taking salicylate of sodium, and in which the symptoms subsided in three days under the application of salicylate of methyl to the precordia. In connection with pericarditis, attention should be drawn to a very important indication, which seems to have been hitherto overlooked, as it is not mentioned in the published accounts of the disease. This is loss of abdominal respiratory movement. The association is so constant that, on the one hand, this sign should always lead to examination of the pericardium, even when there is nothing else to call attention to the morbid state of that sac, and on the other hand, when such respiratory movement is definitely present, doubtful indications of pericarditis may be disregarded. In pericarditis the plan adopted is to spread an ointment composed of two drams of oil of gaultheria in an ounce of lanolin, on lint and apply it continuously over the precordia. That the medicament is rapidly absorbed is proved by the detection of salicylates in the urine within half an hour, and no local irritation is

produced. This method of course is particularly applicable to rheumatic pericarditis, and rapid subsidence of the inflammation probably exercises an important influence in diminishing adhesions and limiting the later serious consequences of the disease. When effusion occurs the fluid rapidly disappears under similar local treatment. As a sequel to ordinary rheumatic polyarthritis, it is not unusual to find pain with stiffness and even swelling persisting in some one joint after the general fever has subsided. Here the local application of salicylates often appears more efficacious than the continued administration by the mouth, without causing the nausea, prostration and deafness which are apt to attend the former when unduly prolonged. Many cases of sore throat, faucial injection and follicular or parenchymatous tonsillitis respond rapidly to a compress extending to the angle of the jaw, composed either of the ointment of gaultheria or of a hote fomentation to which a dram of the oil has been added. Perhaps of all the disorders affected by this application none shows such marked improvement as erythema nodosum. In the ordinary way the blotches spontaneously subside in the course of two to four or six weeks, being unaffected by remedies, and prolonged by repeated outbreaks. The local application of methyl salicylate with menthol, as an ointment, relieves the discomfort at once, and induces immediate subsidence within a week, no fresh blotches appearing. The widest application however of this mode of treatment occurs in the various aspects of fibrositis, due to subacute rheumatism, affecting nerves, muscles, aponeuroses and bursae. Muscular rheumatism, stiff neck, pleurodynia, lumbago, and tenosynovitis, mostly in young people, disappear rapidly under the influence of rubbing with one of the liquid preparations. The stock remedy is an ointment of two drams of oil of gaultheria in an ounce of lanolin with the addition of 15 grains of menthol where an anesthetic effect is required.

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**Bismuth:** Alexander Goldman in the *New York Medical Journal* for March 25, reports on the use of bismuth in gastric therapy. He has used it for over four years in the Vanderbilt Clinic and summarizes the results in 100 consecutive cases treated with and greatly benefited by it. They were gastrosucchoresis, superacidity due to chronic ulcers or other causes, acute ulcer, chronic gastritis, etc. It was used in doses of from one half to one dram in a half a glass of water, one half hour before eating, also in combination with magnesia usta and sodium bicarbonate. Many patients recognized what medication did them the most good, and asked for the "white powder." The results were so satisfactory that experiments were made with a view of finding out the action of the drug in the stomach. From these he concludes that bismuth, given in doses large enough, acts mechanically, forming a coating on the mucous lining, as well as reducing the acidity of the stomach contents, and markedly differing from alkalis in that it does not stimulate the flow of gastric juice. Given in cases of gastrosucchoresis it retards secretion and coats the stomach, relieving it of the gnawing pain, and doing away with the nausea. It acts much more powerfully on a fasting stomach. It relieves the stomach of the burning sensation and also of belching. In using the drug the patient is no longer afraid to eat and improves much sooner in general health. It soothes inflamed and irritated mucous membranes, and protects nerve endings probably, and thereby does away at once with vomiting. In doses of from one-half to one dram it does not constipate as a rule; in rare cases in which it does, the least amount of cascara, or the smallest dose of phenolphthalein counteracts it. No bad effects were ever obtained in the whole series of cases treated.



**Blood Pressure:** Henry D. Jump in the *International Clinics* (Vol. I, Series XXI), treats of the value of blood pressure estimation, considering its practical uses as to the therapeutical guidance in internal medicine. While a large amount of work has been done, and nearly all diseases have been studied as to their effects on blood pressure, we cannot fail to be disappointed when we see how greatly out of all proportion the practical results obtained are to the amount of labor expended. Yet that which has been effected is of great value and there is hope that more may be accomplished, as for instance in determining the functional capacity of a damaged heart. As to peripheral arteriosclerosis the degree of hardening is proportionate to the extent of the process; it may be considered compensatory, and efforts to reduce it by drugs are harmful. Treatment directed to the cause, however, is productive of good, and the dangerous condition may be relieved or the progress of the process retarded by such treatment. Treatment by mental and physical rest, diet, elimination, etc., will be of value. Chronic interstitial nephritis, which is practically always associated with general arteriosclerosis, shows high blood pressure uniformly, and the combination is productive of the highest pressure seen. The hypertension of nephritis is compensatory in that it increases the flow through the kidneys and the elimination of irritating substances. It is dangerous to attempt to lower this pressure directly. The proper method is to limit the formation of such substances by diet, etc. As an arteriosclerosis the sphygmomanometer is helpful in determining the value of the measures of relief. It is in heart disease that the greatest disappointment in blood pressure estimations is experienced. In aortic regurgitation alone do we get any definite diagnostic information. In determining the working capacity of a diseased heart, several methods have been advocated, but none have yet proved to be of consistent value. In pneumonia there is no uniformity in the blood pressure findings, some observers finding hypotension and others hypertension. The truth probably is that the pressure varies with the degree of the toxemia, and the gravity of the case. Gibson's statement is significant and offers a valuable method of prognosis, and shows the way for improvement in the therapeutics of this disease. He says: "Where arterial pressure expressed in millimeters of mercury does not fall below the pulse rate expressed in beats per minute, the fact may be taken as of excellent augury, while the converse is equally true." G. A. Gordon confirms this result, finding that in no case of 15 was there a fatal result when the blood pressure kept above the pulse rate, and in only one did recovery occur when it fell below. Hare also corroborates this assertion, the lowering of the pressure being probably due to toxic vasomotor paralysis of the splanchnics. Here Forchheimer recommends hypodermoclysis, or venous transfusion with large quantities of normal saline solution, and one c.c. of adrenalin solution (1-1000). Jump has seen one case of falling blood pressure with rising pulse rate, treated by the adrenalin injection, in which the whole condition improved and the patient recovered. In typhoid fever low tension is always present due to the bacterial toxins causing vasomotor paresis of the splanchnics. This hypotension is slowly and regularly progressive with the development of the toxemia, and gives us an exact indication for the use of stimulation. Eclampsia shows a very high blood pressure and the examination of the blood pressure in pregnant women gives us as much or more information as the examination of the urine. According to Skeel the blood pressure of pregnant women is normal until the last two weeks, when it is elevated. This elevation should never exceed 150 mm., and the pressure should fall after labor is finished. If the pressure exceeds this it is a warning of the pre-eclamptic condition. If abnormally high pressure persists in the third stage, or if there is little or

none of the normal decline, measures for relief must be instituted almost as urgently as if the seizure were present. In large cerebral hemorrhage the pressure is high and in apoplectic coma, this hypertension will serve to distinguish the condition from that of embolus in which it is low.

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### Department of Pharmacy.

Conducted by H. V. ARNY, Ph. G., Ph. D.

**Petrox Preparations:** Combinations of oleic acid, alkali and liquid or solid petrolatum have been commercially exploited as vehicles for inunction of medicines and the National Formulary contains recipes for similar products under the names Liquid Saponated Petrolatum and Solid Saponated Petrolatum and the synonyms, Liquid Petrox and Solid Petrox.

G. M. Beringer and his son (*American Druggist*, 58, 23) have worked on these products in connection with the present revision of the Formulary and recommend that in the forthcoming edition the recipe for Liquid Petrox call for, liquid petrolatum 50 grams; oleic acid 28 grams; oil of lavender flowers 2 grams; alcohol 15 grams, and, lastly, stronger ammonia water 5 grams (4.5 grams give better results—Abstractor), mixed in order given, with water-bath heat if necessary, a clear liquid making a permanent emulsion with water results.

For Solid Petrox, the writers advise the following recipe. Melt together 37 grams paraffin and 20 grams liquid petrolatum, add 30 grams oleic acid, transfer to a warm mortar, add three grams oil lavender flowers, 5 grams alcohol, 5 grams stronger ammonia water and stir until cool.

The article also gives recipes for a number of medicated forms of the two petrox preparations, such as those containing oil of cade, creosote, eucalyptol, guaiacol, mercury, ichthyol, iodine, etc.

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**Difficult Prescriptions:** The following batch of prescriptions were presented by George Eliot (*Chemist and Druggist*, through *Merck's Report*, 20, 101).

The first was a lotion calling for precipitated sulphur 1 dram; prepared calamine 4 drams; zinc oxid 4 drams; glycerin 1 ounce; water to make 4 ounces. This should be dispensed with the sulphur as finely divided as possible.

Another called for the proprietary powder, phenalgin, along with acetylsalicylic acid, exalgin and caffeine, all to be dispensed in papers. The phenalgin and the acetylsalicylic acid when triturated turn pasty and the writer, therefore, dispensed the phenalgin separately.

The other prescription described formation of insoluble silver sulphate in mixing alum and silver nitrate, and production of bismuth oxycarbonate and of sodium salicylate in combining bismuth salicylate and sodium bicarbonate.

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**Limonene:** This terpene obtained largely from oil of orange is recommended by Zickgraf (*Merck's Report*, 20, 108) for fetid bronchitis and other pulmonary troubles, for which terebene and terpin hydrate are now used. It may be given in 10-20 drop doses on sugar thrice daily.

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**Cannabinol:** Czerkis (*Pharm. Post*, through *Chemical Abstracts*, 5, 758) finds this active constituent of *Cannabis sativa*, has the formula  $C_{21}H_{30}O_2$ , contains one hydroxyl group and presumably three benzene rings. On oxidation with potassium permanganate it yields butyric acid and another acid, the formula of which seems to be  $C_{18}H_{24}O_6$ .



The cannabinol content of a drug can be determined by feeding a petrolatum ether extract of about one gram to a dog or a cat and noting the beginning of the intoxication.

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**Spread of the Opium Alkaloids:** The development of the alkaloids of *Papaver somniferum* has been studied by Kerbosch (*Arch. Pharm.* through *Chemical Abstracts*, 5, 760). Poppy seeds containing a trace of narcotin were planted and this alkaloid was found in three day old sprouts, the other alkaloids appearing in the growing plant in the following order: codein, morphin, papaverin and thebain. All parts of the flowering plants except the stamens contain these four alkaloids and narcotin. Narcein appeared in the capsules ten days after flowering.

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**Antiseptic Power of Volatile Oils:** Applying the *Lancet* method of determination of the phenol coefficient, the coefficient of volatile oils was found to be: origanum oil 25.76; thymol 19.41 in aqueous solution and 25.29 when saponified; geraniol 12.29; oil of cloves 8.88; oil of cinnamon 7.10; oil of wintergreen 4.64; oil of lavender 4.94; lemon oil 3.94; eucalyptus oil 3.55; santal oil 1.67. W. H. Martindale (*Ph. Journal*, through *Chemical Abstracts*, 5, 761).

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**Gelsemium:** Yellow jasmin, the rhizome and roots of *Gelsemium sempervirens*, has been submitted to careful examination by C. W. Moore (*Journal Chem. Soc.*, through *Chemical Abstracts*, 5, 763) who finds a trace of volatile oil; a brown resin (3%) consisting of pentatriacontane, traces of emodin monomethyl ether, a physterol  $C_{27}H_{44}O$ , a small amount of ipuranol  $C_{23}H_{38}O_2(OH)_2$  and a mixture of oleic, palmitic, stearic and linolic acids. The alcoholic water-soluble extract contained scopoletin (monomethyl ether of esculetin) both free and glucosidal and also three alkaloids.

One of these is gelsamin (melting point  $178^{\circ}C.$ ) having the formula  $C_{20}H_{22}O_2N_2$ ; the other two are amorphous and impure; one agreeing with the gelsaminin of Thompson and Cushing. 0.1 gram gelsemin hydrochlorid was injected intravenously into a rabbit without effect, while 0.001 gram of the amorphous bases used the same way produced convulsions and death.

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**Danger of Colloidal Silver:** According to Hamburger (*Pharm. Week*, through *Chemical Abstracts*, 5, 763) fresh collargol preparations are readily miscible with water but when two or three months old they are not so soluble. Such old solutions used intravenously sometimes produce dangerous embolisms and should therefore, be avoided.

## Ohio State Medical Association Meeting.

### SCIENTIFIC EXHIBITS:

For the scientific exhibits space has been reserved in the Chamber of Commerce Auditorium, from which there is easy access to the meeting place in the Brotherhood of Locomotive Engineers Auditorium. The registration and information booths will be in the Chamber of Commerce Auditorium and the smoker will also be held here. It is hoped that the scientific exhibits may be both interesting and valuable and in order that they may be so the cooperation of those who have anything of interest to show is asked.

## PATHOLOGICAL EXHIBIT:

Representative and unusual pathological specimens are sought. For the labelling of such the special cards, which may be obtained on application, should be used. Equally valuable are photographs of clinical cases and of gross pathological specimens, drawings, microphotographs, unusual clinical charts, etc. In regard to such exhibits address Dr. O. T. Schultz, Western Reserve Medical College, Cleveland.

## X-RAY EXHIBIT:

For the x-ray exhibit it is requested that members communicate with the committee at as early a date as possible, stating the nature of the exhibit they wish to make and the number and size of plates. Only 8 x 10, 11 x 14 and 14 x 17 plates can be accepted. Typical plates of pathological conditions of the thorax and of the various diseases of bones and joints are especially desired. Kindly address communications to Dr. Geo. F. Thomas, 533 Osborn Building, Cleveland.

The essentials in a clinical history should be sent with each specimen.

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Academy of Medicine of Cleveland.

## EXPERIMENTAL MEDICINE SECTION.

The fifty-fifth regular meeting was held at the Cleveland Medical Library, Friday, March 10, 1911, R. G. Perkins in the chair.

The program was as follows:

1. Remarks on the Pathological Significance of Neurological Symptoms Occurring in Pernicious Anemia, C. W. Stone.

In certain cases of pernicious anemia, symptoms of a neurological nature were to be met with. These were both sensory and motor in character. Examples of the former were seen in various paresthesiae of the extremities, the development of hypesthesia and anesthesia, the girdle sensation, and pains of varying severity in the legs and chest. Of motor symptoms one might meet with an early sense of weakness in the legs with a rapidly increasing inability to walk, which might be soon associated with evidence of a spastic paralysis, and in some cases by a later flaccid paralysis of the lower extremities.

Not all cases showing nervous phenomena clinically showed lesions in the nervous system histologically, nor had all cases showing lesions histologically presented definite clinical neurological findings.

Lesions of the nervous system in pernicious anemia were confined almost wholly to the spinal cord and medulla. The changes in the cord usually began in the posterior columns, and later were more marked here. The earliest changes were small focal areas in the white matter of the cord which showed swelling of the myelin sheaths and axis cylinders, and later a breaking down of these with a transference of the debris to the neighboring blood vessels by large granule cells. From the cross section of the cord, often there occurred a falling out of the swollen nerve fibers, or granule cells, giving rise to numerous small empty spaces. These small focal areas coalesced, or enlarged, and thus large areas of degeneration might form. Secondary degeneration to a certain degree might also be noted. In later stages there occurred a proliferation of the neuroglia.

The speaker had worked with the spinal cords of ten cases of pernicious anemia which showed pathological changes in the nervous system. Stereopticon slides from some of these were shown to illustrate the character of the lesions met with in this condition.

J. H. Lowman said that in pernicious anemia very great weakness sometimes developed with surprising suddenness and was no doubt due to these degenerative changes in the nervous system, since there was not a sufficient increase in the anemia to account for it. The alteration in the type of the nervous symptoms was sometimes very marked as, for example, the change from a spastic to a flaccid paralysis.



O. T. Schultz said that for the pathologist the chief interest in the lesions, which these preparations so well illustrated, lay in the explanation of their production. It was apparent that there were two possibilities; one, that there was a primary degeneration of the white matter, the other, that the ganglion cells were primarily involved. The general pathologist, convinced that the cell and its nucleus were more vulnerable than any of the cellular products or derivatives, would expect to find that in pernicious anemia the ganglion cells were primarily altered. That such changes were not usually found was perhaps due to the late stage in which the lesions were seen and possibly to a lack of appreciation of the alterations which the ganglion cell might show. He had no doubt but that a study of the cord in early cases of pernicious anemia, made in the careful and painstaking manner that Dolley has used in his investigations and carried out with the same knowledge of general cytological facts upon which his conception was based, would show similar changes. He believed that one could predict the series of alterations in the ganglion cells which would ultimately be found to underlie the more striking tract degenerations. These changes might be due to anemia, more probably a toxemia played a greater part. The explanation of the irregular distribution of the cord changes was a more difficult matter. In the cord from a case of pellagra, in which disease there occurred, as had been pointed out in the paper, degenerations of the white matter similar to those described in pernicious anemia, he had found undoubted evidence of the complete series of ganglion cell changes from hyperchromatism, through dechromatinization, to complete exhaustion, death and disintegration.

C. W. Stone, in conclusion, said that in regard to the question as to changes in the ganglion cells, these cells had been studied carefully and while they sometimes showed an increased amount of pigment the hyperchromatism was not more marked than one would expect to find in persons over middle age. The ganglion cells did not, as a rule, show changes as described by Dolley. He disagreed with O. T. Schultz as to changes in the grey matter being always primary; in these cases he believed the primary lesion occurred in the white matter.

2. Experimental Work Concerning the Circulation in the Foot After Forcible Correction of Congenital Club Foot, W. G. Stern (To appear in full in the Journal).

3. Drug Exanthemata in Relation to Anaphylaxis, H. N. Cole. (Appearing in full on page 442.)

J. J. R. Macleod asked whether anyone had investigated to see if those foodstuffs causing urticaria were the same substances that Heidenhein had used in his experiments to affect the flow of lymph—were they all lymphagogues? Heidenhein's explanation of the action of these substances was that they had a toxic effect upon the endothelium of the lymph capillaries, especially in the liver. The speaker was evidently not in accord with those who ascribed drug eruptions to anaphylaxis and he wished to ask him to define anaphylaxis and to explain whether it had to do with protein substances only or whether other substances could produce the phenomenon.

O. T. Schultz said that the Section was indebted to the speaker, first, for having reviewed the facts upon which depended the phenomenon called anaphylaxis and, secondly, for having detailed his own experimental work dealing with attempts to apply anaphylaxis to the explanation of certain human clinical conditions. Concerning the experimental production of anaphylaxis in animals there could be no doubt. Important was the fact that the condition of hypersusceptibility had thus far been produced only by the use of foreign proteins. The serum sickness following diphtheria antitoxin and tuberculin must also be considered true anaphylaxis, a foreign protein being the sensitizing substance in each case. Because the condition was, experimentally, so sharply limited to pro-

tein substances, it became a somewhat difficult matter to apply anaphylaxis in the explanation of certain clinical conditions—hay fever, pellagra, susceptibility to buckwheat and to certain drugs. The skin lesions which followed the ingestion of the iodids, copaiba and other drugs must be considered evidence of unusual susceptibility, but one hesitated to believe that this hypersusceptibility was the same sort of a phenomenon as that which characterized anaphylaxis. Against the work of Bruck and the others mentioned, must be urged the use of too small a number of animals in the experimental work and the use of lethal doses of the drugs. It was known that certain persons had an idiosyncrasy against the iodids and that this hypersusceptibility might manifest itself in the formation of intensely inflammatory skin lesions. The experimental work reported in this paper showed that the serum of such persons contained something which rendered the animal injected with that serum more vulnerable—the hypersusceptibility of the human would appear to be passively transmitted to the animal.

R. K. Updegraff said that this subject was of enormous importance clinically and that it was now clear that the administration of even simple horse serum was not innocuous. He had had an unfortunate experience with diphtheria antitoxin: a child who had received antitoxin for diphtheria with good effect, took the disease again two years later; 4000 units of antitoxin were given and the child died after several hours distress. He ascribed the death to heart failure, but quite possibly it was due to anaphylaxis. He thought, therefore, that the giving of antitoxin in cases with a doubtful diagnosis was a questionable procedure.

R. G. Perkins said that in a recent epidemic of diphtheria at Rainbow Cottage no unfavorable results followed the use of diphtheria antitoxin, although every child had received a prophylactic dose on admission, another dose when the epidemic broke out, and most of them a third dose when a later outbreak of diphtheria occurred.

P. A. Jacobs said that some authorities had explained the phenomena of anaphylaxis as due to a deficient coagulability of the blood and had therefore advised the administration of calcium salts. He wished to ask whether any satisfactory results from the use of calcium lactate or other salts had been noticed by the speaker in the literature.

D. Marine asked whether any importance was ascribed to the fact that the serum of individuals, susceptible to these drugs, produced the reaction on guinea pigs while the serum of individuals who could tolerate the drugs produced no results.

H. N. Cole, in conclusion, said that it was still an undecided question whether serum disease was due to anaphylaxis, though the consensus of opinion was in its favor. To lessen the probability of unpleasant symptoms from the use of serum it had been recommended to heat the serum to 50° C. before injection and to use concentrated preparations. Ether narcosis and calcium salts had been recommended to alleviate symptoms but they were apparently of little value. The use of atropin injections had also been advised but authors disagreed as to its value. The serum of patients tolerant to the drug was used merely to see if there was a reaction like that with the serum of intolerant patients.

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#### ACADEMY MEETING.

The eighty-second regular meeting was held at the Cleveland Medical Library, Friday, March 17, 1911, the President, W. B. Laffer, in the chair.

The amendments to the Constitution and By-Laws, which had been read at the previous meeting, were voted upon and carried.

The program was as follows:



Present Day Gynecological Problems of Interest to the General Physician, Barton Book Hirst, Philadelphia, Pa. (Appearing in full on page 401.)

H. Robb, in opening the discussion said: "I feel sure that we have all listened with great interest and profit to this eminently practical paper. Although to a considerable extent Dr. Hirst has gone over more or less familiar grounds, he has brought out in a masterly manner the present status of some very practical points in obstetrics and gynecology. Neither time nor knowledge will permit me to discuss all of the topics that he has brought to our attention tonight. I will therefore confine my remarks to a consideration of a few of the subjects dealt with.

"With reference to infections following labor and abortions, as Dr. Hirst says, such conditions should not arise very frequently, inasmuch as they can almost certainly be prevented by the carrying out of a consistent aseptic technic. Undoubtedly the obstetrician, but more particularly the man in general practice, does not always fully appreciate what aseptic surgery really means, and even if a consistent cleanliness is obtained by the physician himself it is often difficult to keep up an aseptic technic throughout a labor, particularly outside of a well-equipped hospital. The only way, in my opinion, for any one to learn the practical application of a consistent aseptic technic, is by serving an apprenticeship in the operating room of a surgeon who fully believes in carrying out a surgical technic from a bacteriological standpoint.

"There can be no doubt but that the midwife is responsible for many maternal and fetal deaths, and we physicians should see to it that stringent laws are passed, and rigid examinations required before a midwife is allowed to attend a woman in confinement.

"Gonorrhea undoubtedly plays a large part in the production of pelvic inflammatory diseases in women, and in my experience about one-half of the pelvic infections are caused by this disease.

"I have not had much experience with the treatment of puerperal infection with antistreptococcic serum, but in those cases in which we have used it, the results have been rather disappointing. We have found it difficult to always demonstrate the presence of pure streptococcus infection in these cases, as not infrequently this is found to have followed the invasion by some other organism.

"I quite agree with what Dr. Hirst has said with reference to the treatment of lacerations of the cervix and perineum. In those cases, however, in which there has been a complete tear of the perineum, I would advise the immediate carrying out of operative procedures unless the patient's condition is so serious that delay would seem to be advisable.

"Dr. Hirst's advice with reference to the prevention of retrodisplacements of the uterus is good, and if, as he says, all women were to be examined soon after labor, and the uterus be replaced, there would be fewer retrodisplacements to deal with later on. Frequently the uterus can be brought forward during the bimanual examination either with or without an anesthetic, but should the uterus return again to its backward position on the slightest touch, it is better to apply a well-fitting Smith-Hodge pessary, which can be worn for a few weeks or even several months.

"As Dr. Hirst has pointed out, the importance of bleeding from the vagina cannot be brought to the attention of the man in general practice too frequently, as he is the one to whom such patients first apply for advice. If, however, he neglects to make an examination or to have one made by a man capable of recognizing the beginnings of a malignant growth, and should such a patient subsequently develop a cancer, the man to whom the patient has first applied is certainly reprehensible. My experience with this dreadful disease quite agrees with that of Dr.

Hirst, that we seldom meet with a case of cancer of the uterus early enough to carry out a radical operation, with a reasonable certainty of effecting a cure.

"With reference to his statements regarding the treatment of myoma of the uterus I also find myself of his opinion. The theory that a fibroid growth in the uterus not infrequently becomes malignant has been conclusively proved by a careful microscopic examination of a large number of cases. Cancer is occasionally found associated with a myomatous uterus, but this does not mean that the myomata were the cause of the cancer, but the malignant condition should be regarded as simply a coincidence. Myomatous tumors are so common, that we would rather expect to find them occasionally associated with a cancer. At any rate if a cancer is present the symptoms that are produced, as a rule, are sufficient in the vast majority of cases to call for the curetting of the uterus, and the microscopic examination of the tissues thus removed would show the malignant condition, or the symptoms from the first would be of such a character that a hysterectomy would be indicated without delay. Dr. Hirst holds that there is no necessity for rigid adherence to either plan in an uncomplicated case of a tumor of moderate size, without pressure symptoms or excessive hemorrhage, there is always ample time, years in fact, during which the rate of growth can be observed and untoward symptoms can be watched for to enable us to decide whether the neoplasm is a serious detriment to the patient or not.

"With reference to the treatment of ectopic pregnancy I find myself at variance with Dr. Hirst. My experience has been quite the contrary to his, as I have never seen a patient really bleed to death, but I have seen a number of patients operated to death. In the cases in which the patients are not in shock or show only a slight shock following a rupture it does not matter much whether they are operated upon at once or later on. A vast majority of all such cases come to us months or sometimes even years after rupture has occurred. If, therefore, such a patient is operated upon by a competent man soon after she is first seen the probabilities are there will be no mortality. If, however, we teach that all such cases should be operated on at once, the merest tyro will consider that it is his duty to operate immediately, and one can easily understand how there might be a considerable mortality even in the simple cases under these circumstances. In those cases, however, in which the patients are in a condition of marked shock from the loss of blood, if operative procedures are carried out at once, even by an expert, as has been shown by a careful statistical study from a large number of clinics there will be a mortality varying from 20 to 40%. But, if we wait for a reasonable amount of reaction to take place before operating, I feel certain that the death rate will be a smaller one. I have myself seen quite a few patients recover since I have adopted this plan of procedure, whereas formerly I have seen a number succumb after immediate operative procedures, simply from the effects of the shock of the operation, no matter how little the manipulation carried out, or how skilful the operator. If such cases, however, are operated on—from a sense of urgent duty—by men who have not had the necessary training to do abdominal operations, one can easily understand how very high the death rate would be, when we consider that even in the hands of the very best men, as already stated, the mortality is from 15 to 40% under such circumstances. I feel quite sure that a large number of women have been sacrificed by being operated upon when in a condition of shock, when they could have been saved by an operation performed at a later period. In the past year we have had eight additional cases of ectopic pregnancy and the patients have recovered, although they were not operated upon until after several days or even a week or more following the rupture. One patient in the hands of my colleague, W. H. Weir, was in such a poor condition when he first saw her (she was practically pulseless) that he



advised her being sent to the hospital where she might be properly nursed and attempts could be made to improve her condition. After the institution of the treatment that we carry out for such patients, her condition so improved that it was relatively safe to operate upon her after two weeks, and she made an uninterrupted recovery. One difficulty is, that in the cases in which the patients are reported to have bled to death, no treatment for overcoming the condition of shock has been carried out in the vast majority of instances. I can understand how an occasional patient might die as a result of the loss of blood, but I think these are the exceptions, and in my experience I have never met with such a case, although I have had a considerable number of patients very badly shocked as a result of the loss of a large quantity of blood.

"With reference to the treatment of sterility I have not found that any form of treatment is of value in the great majority of cases. So very often it is impossible to ascertain the etiological factor. I feel sure that a considerable number of instances of sterility are due to an inflammatory condition of the tubes, which has caused the fimbriated end to become sealed up, although the tube itself may not be much enlarged, and be only slightly, if at all, adherent. This condition is frequently due I believe to a gonorrheal inflammation. It is often difficult to recognize this condition of the tube by the usual methods of examination, and I have been surprised in some cases to find that, even after a very careful negative examination of the patient while under the influence of an anesthetic, through an incision in the cul-de-sac, there would be revealed a slightly enlarged and adherent tube, and often a diseased ovary. The treatment that I have carried out in some instances, with satisfactory results, has been to thoroughly dilate and curette the uterus and then to introduce a Wylie hard rubber pessary, which is kept in position from two weeks to three months. In some instances, I have dilated the cervix, after the original dilation, every three or four days for a period of two or three weeks. The dilations after the original operation are performed without the use of an anesthetic."

W. H. Humiston said that retroflexion was one of the most common conditions found in gynecological work. Usually it was due to laceration of the cervix which, if even mildly infected, might fail to heal and cause an arrest of involution of the uterus. This subinvolution was a very great factor in inducing retroversion. It was claimed by some that retroversion could be cured only by abdominal operation. This was a mistake. If uncomplicated it could usually be cured by the use of appropriate measures such as the knee-chest position, tampons and a properly fitting pessary for eight or ten weeks. If the displacement could not be remedied by these means the case was usually complicated by adhesions. He did not think that hysterectomy was necessary for small fibroids if they were not causing symptoms, but when they reached a sufficient size to produce pressure or cause bladder symptoms it was time to operate. One argument in favor of operation was the impossibility of determining whether sarcomatous degeneration had already begun or not. As regards ectopic pregnancy he thought that the general rule of surgery—that if a vessel anywhere in the body were bleeding it should be tied if it could be reached—should be observed. He had operated in many cases in which the pulse could not be felt, but under the stimulation of the ether and submammary administration of salt solution a patient's condition would improve so as to permit the rapid opening of the abdomen, clamping of the vessels and the removal of the sac. In such cases he made no attempt to clean out the clots thoroughly if the patient were in a bad condition. As yet he had had no fatal results in cases of ectopic pregnancy. Gonorrhea was responsible for about 90% of all cases he operated upon. If this disease were treated more thoroughly in the beginning there would be much less trouble later. In treating primary gonorrheal infections he insisted upon the patient remaining in bed; the vulva was shaved and

scrubbed; the vagina cleansed and disinfected; the cervix wiped out with alcohol and compound tincture of iodine applied; the vagina dusted with a mixture of boracic acid and iodoform and then packed with gauze. The packs were changed every 48 hours for four times and then frequent douches of permanganate of zinc were given two or three times daily. If the urethra were infected it was washed out and urotropin was given by mouth. This plan he had found very effectual in rapidly subduing gonorrheal infections.

W. H. Weir said that his experience with antistreptococcic serum, while rather limited, had been uniformly disappointing. He understood that most men had had a similar experience with it and was therefore surprised to hear the speaker refer so enthusiastically to it in the treatment of puerperal sepsis and he asked that, in concluding the discussion, the speaker would explain more in detail his method of employing it.

P. A. Jacobs said that in the last year or two he had seen nine cases of infection after labor and abortion, the majority of which were general infections showing organisms in the blood. All of these cases died although antistreptococcic serum, stock vaccines and later autogenous vaccines had been used. In none of the cases had antistreptococcic serum seemed to have any effect whatever.

J. E. Tuckerman thought that retroversion after confinement might be due to keeping the patient too long upon her back in bed. He believed in having the patient sit up as soon as possible and so far he had seen no bad results from following this plan.

L. Towslee had taken much interest in the speaker's remarks on sterility and she herself had had some very good results with electricity in this class of cases: in one instance, after six months' treatment, the uterus had markedly increased in size and pregnancy ensued. She did not favor operation in every case of ectopic pregnancy and had seen many cases do well under palliative treatment. A great many of these cases cleared up without operation.

B. C. Hirst, in conclusion, said he had been particularly interested in H. Robb's remarks as to the advisability of delayed operation in ectopic gestation. He realized that there must be some good grounds for his contention but personally he was in favor of early operation. Within a short time he had seen four cases die from hemorrhage before operation could be performed. Some years ago, at the medical society meetings in Philadelphia, the coroner's physician would present, from time to time, numerous specimens of ruptured tubal pregnancy from patients who had died suddenly from hemorrhage. Now such deaths were very rare as the condition was more quickly recognized and a life saving operation performed. He has consistently operated upon these cases as early as possible after diagnosis was made, and in over 200 cases, some of which were pulseless when seen, he had had no fatalities. His experience with antistreptococcic serum at first had been unsatisfactory but on one occasion he determined to try large doses in a certain desperate case and had obtained very satisfactory results. Now he gave 80 c. c. at a dose, four doses daily for three days in succession, and he found it gave very satisfactory results. In regard to posture after childbirth, he agreed that the patient should be allowed a certain amount of freedom of movement but he did not allow his patients to sit bolt upright or to stand erect too soon, as he thought this tended to produce relaxation of the ligaments and prolapse and predisposed to embolism. Electrical treatment for sterility should certainly be more widely used than it was. He felt sure that many cases could be overcome by it as it certainly was useful in improving nutrition and aiding the development of undeveloped uteri.



OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL  
SECTION.

The fifty-second meeting was held at the Cleveland Medical Library, Friday, March 24, S. H. Large in the chair.

The program was as follows:

1. Observations on the Technic of the Radical Mastoid Operation. W. H. Tuckerman. (To appear in full in the Journal).

S. H. Large said that in his experience the hearing had not been made worse after radical operations.

J. M. Ingersoll stated that in most cases in which the radical operation was done the hearing was already so poor that the operation made little difference either way.

W. B. Chamberlin inquired about the Heath operation. He said that it did not affect the hearing any more than the simple mastoid operation.

2. Orthodontia, F. M. Casto.

Some facts regarding the relation of malformed jaws and dental arches to the development of the bones of the face and the influence upon the nasal chambers were presented. A number of casts of malformed dental arches and high vaults were shown, and the changes and effect upon the formation of the bones of the face after proper orthodontic treatment emphasized. Photographs of the patients before and after treatment were shown which clearly demonstrated the great change that took place in the facial lines and contours. The age at which the most improvement and benefit might be had was from five to twelve years. The symmetrical development of the bones of the face depended largely upon the relative normal mesiodistal position of the jaws and dental arches. Any nasal obstruction that caused permanent mouth breathing would interfere with the growth of the maxillae, produce a high vault and malformation of the alveolar process and dental arches; the mouth breathing would be cured only by the removal of the nasal obstruction and correction of the dental arches. The most good in the treatment of contracted dental arches and high vaults was obtained by taking the case at an early age and by expanding and enlarging the arches slowly and definitely, always maintaining the proper occlusal relation between the upper and lower teeth. Rapid expansion was often advisable in adult patients and especially when it was desired to open the median suture. In any case of orthodontic treatment it was imperative that the correct occlusal relation of the upper and lower teeth be established.

W. B. Chamberlin said that Black of Milwaukee took cases as old as 22 years of age and widened the arch.

J. F. Stephan pointed out that the bicuspid and molar teeth were more important in widening the arch than the incisor teeth.

L. W. Childs mentioned the rarity of adenoids in Italian children.

F. M. Casto in closing, stated that occlusion of the teeth was of more importance than the widening of the arch. The arch would be spread but the narrowing would come back if the lower arch was not broadened enough to give occlusion of the teeth.

3. Coagulation of Lymph in the Semicircular Canals, D. A. Prendergast. (To appear in full in the Journal.)

4. Congenital Tumor of the Tonsil, W. B. Chamberlin.

This tumor caused symptoms of suffocation in a new-born child. Upon examination it was found to measure  $3 \times 2 \times 1\frac{1}{2}$  cm. and to be covered apparently with skin, showing fine hairs. From the side of the tumor a pedicle about three cm. long and one cm. in diameter extended to the left tonsil, allowing the tumor to come forward upon the tongue or to fall back into the nasopharynx. The growth was removed close to the tonsil by means of a snare and upon microscopic examination it appeared to be a teratoma showing fibrous tissue, glandular structures, numerous hair follicles, and covered by stratified squamous epithelium.

## MEDICOLEGAL SECTION.

The seventh meeting of this Section was held at the Cleveland Medical Library, Friday, March 31, 1911, R. G. Newcomb in the chair.

The program consisted of a discussion of the Crippen Murder Trial.

Chas. H. Olds, Assistant County Prosecutor, gave a résumé of the facts in the case, beginning with the history of the parties concerned; the suspicion aroused at Mrs. Crippen's disappearance; Crippen's flight subsequent to the investigation by the police; the spectacular pursuit across the Atlantic; his capture and subsequent trial, conviction and hanging. The speaker said that after having carefully considered the evidence given he believed that Crippen would have been found guilty of murder by a court in this country.

John G. Spenser, M. D., reviewed the evidence given at the trial in respect to its toxicological aspect. Certain weaknesses in the evidence offered attempting to prove the presence of hyoscin in the supposed body of Mrs. Crippen were pointed out and the manner in which the tests might have been made positive were suggested.

O. T. Schultz, M. D., reviewed the points brought out in the attempt to prove that the corpse found was that of Mrs. Crippen. The evidence was purely circumstantial as even the sex of the corpse was indistinguishable.

Wm. H. Boyd discussed the subject from the viewpoint of the attorney for the defense and showed how advantage might have been taken of certain facts which apparently were ignored.

Hon. M. A. Foran, Common Pleas Judge, most interestingly reviewed the summing up by the presiding Judge and severely criticized his attitude toward the defendant in practically instructing the jury to convict him.

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CLINICAL AND PATHOLOGICAL SECTION.

The seventy-seventh regular meeting was held at the Cleveland Medical Library, Friday, April 7, 1911, R. K. Updegraff in the chair.

C. A. Hamann reported a case of Banti's disease and exhibited a spleen which had been removed at operation. The patient had marked splenomegaly and anemia, the red cells numbering 3,500,000. The spleen on removal showed a large infarct. There was a temporary postoperative leukocytosis of 30,000. The patient made a good recovery.

He also showed a specimen from a child 19 days old, who had had no bowel movement from birth and who presented symptoms of obstruction. Complete obliteration of the ileum was found, the gut forming a narrow tendinous cord between the ileum and the cecum. The large gut was collapsed and very small, while the small bowel was enormously distended. The ileum was brought up and attached to the anterior abdominal wall with the intention of opening it later, but death from an unknown cause occurred too soon for this. The cause of the condition was undetermined, it might have been due to the persistency of an early fetal condition in which the gut showed an absence of lumen, or it might have been due to fetal peritonitis or to ulceration of the bowel. He had found 185 such cases recorded.

R. K. Updegraff exhibited a patient with Banti's disease characterized by very marked ascites and marked enlargement of the spleen. A Talmey operation had been done in November, 1910, but without much effect. He had been tapped 20 times. The white blood cells were below 3,000. He suffered principally from the inconvenience of the abdominal distention with fluid.

W. I. LeFevre presented a case of favus of the scalp in a boy aged 15, of Russian Jewish parentage. He contracted the disease about eight years ago and it had gradually spread until the entire crown and part of



both sides of the head was affected. The present condition showed a complete alopecia of the crown, due to the Roentgen ray treatment given. The sides of the head still showed the presence of the disease, although part of the inflammation was due to the treatment. When this lad had been referred by N. S. Scott about three months ago the disease was active all over the area involved at present, the scalp was covered with a deposit of yellow scales and about one-fifth of the hair follicles were destroyed, producing tiny bald spots. The disease was caused by a vegetable parasite, *Anchorion shonleinii*, and usually occurred on the scalp but might develop on any part of the body or on mucous membranes. The period of development was from three to six weeks and it was said to be cured when the part remained free from scales after the treatment had been discontinued six weeks. It was very refractory to ordinary methods of treatment, this boy having been treated for years in various clinics. The x-ray was the ideal method, being, quick, painless and clean. The disease was easily diagnosed from its appearance and was one of the few conditions that could be diagnosed from the odor, as it gave the peculiar smell of mice. It was rare in this country and was one of the deportable diseases. Most of the cases occurred in Russian children. The alopecia produced from the Roentgen ray in these cases remained from two to three months, the hairs coming in white and gradually assuming their original color. In this case the boy would regain all the hair not originally destroyed by the fungus.

R. A. Jewett showed a specimen from a case of bilateral abscess of the brain in which cultures had proved negative. The patient showed marked arteriosclerosis with hemorrhage into the pons. The patient was luetic and was markedly intolerant of all specific treatment.

S. G. Boudreau reported a case of renal hypernephroma with a history of ten years' duration and presenting urinary symptoms. Specimens from the case were exhibited.

E. P. Edwards showed specimens from six interesting heart cases with explanatory notes upon the same.

The program was as follows:

1. Report of a Case of Icterus Gravis Following Confinement at Full Term, H. J. Lee. (Appearing in full on page 461.)

2. Report of a Case of Extrauterine Pregnancy at Full Term with Autopsy Eighteen Years Later, N. Stone Scott. (To appear in full in the Journal.)

F. E. Bunts, in the discussion, said that he had operated upon one such case two years after full term. There was great danger to the mother if the operation were not done in such cases, death usually occurring ultimately from sepsis due to extensive abscess formation with resulting fistulous openings.

3 Michel's Clamps for Closing Skin Incisions, Hunter Robb. (To appear in full in the Journal.)

F. E. Bunts asked whether the incidence of suppuration with the use of the clamps was greater or less than with sutures.

J. G. Spenser asked whether scar formation was greater or less than with sutures.

H. Robb replied that he thought suppuration was less common and scar formation was not greater with clamps than with sutures. The main advantage was the quickness with which they could be applied and their cheapness, since the same clamps could be used over and over again.

4. Trifacial Neuralgia, F. E. Bunts. (To appear in full in the Journal.)

## EXPERIMENTAL MEDICINE SECTION.

The fifty-sixth regular meeting was held at the Cleveland Medical Library, Wednesday, April 12, 1911, R. G. Perkins in the chair.

The program was as follows:

1. Chlorin Disinfection of Water with Special Reference to Conditions in Cleveland, R. G. Perkins.

Different sources of civic water supplies were first outlined and then the particular factors contributing to the contamination of the Cleveland supply were discussed. Various methods whereby the water supply could be protected from contamination were described and different methods of purification of water already contaminated were mentioned. The speaker then discussed various methods of purification that might be employed in the case of Cleveland water and the various objections to the use of these different methods were given. Disinfection of the water by chlorin apparently offered the most satisfactory method of disposing of the bacterial contamination already existing. The method of its application was discussed and the experimental work with the apparatus which had been built for this purpose was detailed. Water containing a known quantity of colon bacilli was treated for varying lengths of time and with varying concentrations of bleaching powder solution in this apparatus and very satisfactory results had been obtained. As far as could be determined the method would give very excellent results when actually applied to the city water supply.

2. Methods of Using Chlorin and Conditions Affecting Its Use for Disinfection of Water, H. D. Haskins.

The chemical action of chlorin upon water and the various chemical compounds into which it might enter were discussed. Various physical conditions which might modify the action of chlorin were then considered, e. g., turbidity, amount of  $\text{CO}_2$  in the water, amount of contamination, temperature, pressure, and chemical composition of the water especially with regard to the presence of organic and inorganic salts.

J. J. Thomas asked where the apparatus would be placed, whether at the intake crib or at the pumping station. This plan seemed to be the most feasible one as adequate sewage disposal would be enormously expensive and would not correct the contamination of the Cuyahoga River existing above Cleveland.

J. J. R. Macleod asked whether the presence of chlorin could be chemically detected in water that had been adequately treated, and if so whether it would have any effect upon vegetation as when used for sprinkling lawns. He also asked whether the insoluble part of the bleaching powder was allowed to enter the water supply and if so what became of it, whether it would be changed to bicarbonate of lime and thus, possibly, increase the hardness of the water. The survival of some bacteria after the treatment of water by chlorin was probably a question of resistance. Since the process of disinfection was probably a catalytic one, the temperature of the water would be of great importance, if this action was comparable with that of other catalytic agents, and different quantities of chlorin would have to be used in summer and in winter. The pressure might also have some influence upon its disinfecting action.

R. G. Perkins replied that the bleaching powder solution was sedimented before being used and only the clear solution was allowed to enter the water supply. No free chlorin would exist in the water by the time it reached the consumer, especially in the summer. The question as to whether the chlorin solution would be added at the intake crib or at the pumping station would be determined later when their experimental work was concluded.

3 A Review of the Routine Bacteriological and Chemical Examinations of the Cleveland Milk Supply, H. O. Way. (To appear in full in the Journal.)



O. T. Schultz said that as a result of this work the city was now in a position to appear in court and secure convictions against dishonest milk dealers. A constantly increasing number of housewives called up the laboratory to inquire as to the purity of the milk supplied to them, and this should serve to stimulate dealers to provide better milk.

J. J. Thomas asked what effect pasteurization of milk had as he understood that 85% of the retail trade was now controlled by one firm who pasteurized their milk by the "holding" process. Different restaurants supplied cream of varying percentages, lower priced restaurants giving cream of lower percentage than others. The Board of Health wished to adopt 18% as a standard but this has been opposed by the dealers.

H. O. Way, in conclusion, said that the influence of pasteurization on the milk was under investigation and the details were not yet ready for presentation. The bulk of pasteurized milk, however, was well within the limit. A number of samples of cream had been obtained and in about 40 or 50 samples the average showed about 20%.

4. Phylogenetic Association in Relation to Exophthalmic Goiter, G. W. Crile.

The paper was discussed by M. Friedrich and N. Rosewater.

#### COUNCIL MEETINGS.

The Council of the Academy met Friday, April 7, 1911.

W. A. Bisbee and W. H. Valway were elected to associate membership.

The application of A. J. Pearse and J. O. Glass were referred to the membership committee.

The resignation of C. B. Welty was accepted and the Secretary was instructed to communicate to him the Academy's appreciation for his past favors.

H. J. Gerstenberger was appointed to fill the unexpired term of the late E. F. Cushing on the Milk Commission.

The Committee on Arrangements for the Ohio State Medical Meeting was instructed to procure Dr. Greenfeld, if possible, to deliver an address after the banquet.

The Program and Membership Committees were instructed to arrange for a memorial service for the Academy members who had died in the past year.

The Secretary's actions in regard to not writing to Gov. Harmon and the State Board of Health was approved.

The Chair appointed J. Phillips as speaker for the Cushing Memorial Service.

It was voted that the names of all delinquents be read and that their attention be called to the Section of the Constitution regarding delinquents.

The Council of the Academy met Wednesday, April 12, 1911.

It was voted that C. G. Foote be reinstated to membership upon payment of one year's back dues and dues for the current year.

The report of the Legislative Committee was heard.

J. E. Tuckerman was elected Chairman of the Civic Committee.

The following were elected delegates and alternates to the State Convention: Delegates; J. E. Tuckerman, W. B. Laffer, C. A. Hamann, H. J. Gerstenberger, W. H. Weir. Alternates; W. H. Tuckerman, F. E. Bunts, J. G. Spenser, A. I. Ludlow, M. J. Lichty.

It was voted that the Amendments to the Constitution be adopted.

### Book Reviews.

**The Dawn of the Health Age.** By Benjamin Moore, M. A., D. Sc., M. R. C. S., L. R. C. P. Liverpool, 1911. The Liverpool Booksellers' Co., Ltd., 10 Lord St.

This remarkable book, written by the Professor of Bio-Chemistry in the University of Liverpool, England, although intended primarily for the layman is one which every medical practitioner should read. On both classes of readers, the first impression produced by the book will probably be one of its impracticability. It will probably create the impression of having been written by one who, by reason of his unfamiliarity with the conditions of actual medical practice, has been unable to appraise the situation at its true value and to appreciate the enormous difficulties which lie in the way even of initiating such changes as are suggested. But the thoughtful and earnest appeal to better things, so ably set forth in this work, will on maturer consideration compel the reader to a closer inspection of at least some of its suggestions for improvement, and in the end it will probably accomplish that for which it was evidently written—to make men think. Every reform is preceded by a considerable latent period elapsing between the time at which the reform is first definitely outlined and that which marks the beginning of the work necessary for its ultimate accomplishment. The subject matter of the book is an earnest attempt to outline the necessary reforms, it is the signal which marks the beginning of the latent period.

To many readers it will probably appear that the language in which certain of the present day conditions of medical practice are described is unnecessarily strong, that extravagances of statement are unnecessarily frequent, and that the difficulties to be overcome in attempting, even the initiation of, the reforms suggested are too lightly passed over. All that may be true, but there is an evident purpose in the adoption of such a policy in the writing of this book. It *must* attract attention if it is to do any good and to attract this attention it had to be written in strong language. Like an impressionist painting by a great artist, bold and startling colors are used to hold the attention and compel further analysis.

The theme of the essay is briefly laid down in the preface—"This book is intended to demonstrate on clear, broad lines the necessity for entirely remodelling the present system of medical service in the interests of the whole community. It shows that hundreds of thousands of lives and millions of money can be saved every year if disease is attacked on scientific principles, instead of being dallied with as at present. It proves that such a course is best both for the millionaire and the pauper, because there is but one set of disease agents in the whole world, which attack rich and poor alike, and are transmitted from the one to the other."

"It is only a strong public feeling demanding a rationally constituted public medical service armed with powers to fight disease, which can bring reform in these matters."

In the first chapter it is shown "how we tinker with disease instead of stopping it." This chapter and the last one "The Evolution of the National Medical Service" should, we believe, be taken together. The remaining four chapters of the book treat of more particular social conditions and general preventable diseases. The conditions considered are such as obtain in the British Isles but in most instances it is perfectly logical to consider them as applying to this country. We believe that the fourth chapter on Hospital Abuse is somewhat too condemnatory of the present system of hospital administration, but it points out very clearly that much of our present day charity is misapplied "just as matter in the wrong place is dirt so the most admirable virtue turned from its right use becomes vice"—rather harsh perhaps, and true only if a better system can be evolved. This the writer suggests should be by the adoption of a National Hospital System under the control of State Medical Officers. This service would employ the medical practitioners not as



"tinkercers" of disease, but as a health officer, as a soldier in the Army of Health. To each man would be assigned a district for the health of which he would be responsible. These district doctors would have plenary powers by legislation to deal with disease (by isolation, etc.) on the lines which scientific research has discovered for us in past generations. They would be under the control of superior officers and promotion and remuneration would be based on efficiency of service. The initial salary and the rate and extent of increase would be matters requiring most careful and thorough adjustment but the essay indicates how such an evolution would be possible.

It is a work which everyone should read.

J. J. R. M.

**The Experimental Chemotherapy of Spirillooses (Syphilis, Relapsing Fever, Spirillosis of Fowls, Framboesia).** By Paul Ehrlich and S. Hata. With Contributions by H. J. Nichols, New York; J. Iversen, St. Petersburg; Bitter, Cairo; and Dreyer, Cairo. Translated by A. Newbold, and revised by Robert W. Felkin, M. D., F. R. S. E., etc., Late Lecturer on Tropical Diseases, Edinburg Medical School. With 34 tables and five plates. Pages xv and 181. Cloth, price \$4.00. New York, Rebman Company.

It is to be regretted that the first part, at least, of this volume was not published as a scientific memoir before "606" was made available to the practitioner. If there had been the proper acquaintance with the experimental data which underlie Ehrlich's ideas of specific chemotherapy the treatment of syphilis with the drug might have been undertaken in a more scientific spirit than has been the case. Even if the final decision as to the value of salvarsan in lues shall not be so favorable as we at first supposed, the work was well conceived, the action of the drug was investigated in a painstaking manner and the results of the experimental work upon animals were such as to almost justify the very flattering remarks which Ehrlich makes, in the concluding part of the book, concerning his work and himself.

Part I, pages 3 to 84, by Hata, recapitulates the laboratory work upon animals. The parasiticide action of certain dyes and of many organic arsenic combinations was tried upon the organisms of relapsing fever, of fowl spirochaetosis and of syphilis. For the first rats and mice were used, for the second birds and for the last rabbits. Dioxydiamidoarsenobenzol, "606," proved to have the strongest action upon the parasites and the weakest upon the hosts. In experimental syphilis of the rabbit the results leave little to be desired.

Part II, pages 87 to 113, consists of three contributions by workers not connected with Ehrlich's laboratory. The first, by Capt. H. J. Nichols, U. S. A., is experimental and briefly relates the striking manner in which "606" causes the disappearance of the parasites from the lesions of frambesia in rabbits and apes. The second, by Iversen of St. Petersburg, and the third by Bitter and Dreyer of Cairo indicate the value of the drug in the treatment of human relapsing fever.

In Part III, pages 117 to 159, Ehrlich unfolds some of the mental processes through which he passed to reach the results obtained. He naturally speaks most optimistically of the value of "606" in the treatment of syphilis. Ehrlich's contribution is somewhat marred by a tremendous hypertrophy of the ego. But the work is the work of a genius, of that there can be no question, and Paul Ehrlich is the genius. Supermen are rare and we can forgive them much, even egotism. More lamentable is the too frequent use of Latin phrases. "Heildosis" or "curative dose" is just as expressive as "dosis curativa" and savors less of pedantry.

One regrets the use of the word "Spirillooses" in the title and of it and "spirilla" in the text. Both Ehrlich and Hata say distinctly that the

idea for the work came from the close biological relationship of the trypanosomes and the spiral organisms and the protozoan nature of the latter is accepted. Spirochaetae and spirochaetoses would have been more fortunate terms.

The translation follows the original German closely. In Part I the translator has comparatively easy sailing. But when he comes to Ehrlich's theoretical considerations the close adherence to the German idiom and the endeavor to use "already" as often as a German uses "schon" result in English so involved that one must occasionally go to the original to learn what Ehrlich really did say. In some places the translator has been very unfortunate in his selection of English equivalents for the German. A few "deadly parallels" will serve as examples of how not to translate German:

"Correspondingly, I each time injected 0.2 c.c. of a blood dilution intraperitoneally into a mouse, which had received 15 to 20 spirilla in one (microscopical) field of the preparation freshly prepared from it" (p. 27). If this means anything it does not mean the same as the German: "Dementsprechend spritzte ich jedesmal 0,2 c.cm. einer Blutverdünnung, welche 15-20 Spirillen in einem Gesichtsfeld des davon bereiteten frischen Präparates einhielt, einer Maus intraperitoneal ein." (p. 27).

"Soluble proportions" (p. 33) for "Löslichkeitsverhältnissen" (p. 35).

"We always noted that the number of spirilla found in the Chinese ink preparation is as follows" (p. 45) is not the same as "Die Zahl der im Tuschpräparat gefundenen Spirillen habe ich stets in folgender Weise notiert" (p. 46).

"It frequently happens that the chancre extends beyond the testicles and produces orchitis" (p. 61). *Mirable dictu!* What Hata really said was "Häufig kommt es vor, dass der Schanker auf den Hoden übergreift und Hodenentzündung hervorruft" (p. 62).

"Neutral inflation" (p. 110) for "neutrale Aufschwemmung" (p. 110).

"Threefold value arsenical derivative" (p. 124) for "dreiwertigen Arsenrest" (p. 122). If a comic opera German professor said anything like that when he meant trivalent arsenic it would be really humorous. But the Englishman who did the translating can do even better, without half trying: "fifth equivalent arsenical product" (p. 124) for "fünfwertigen Arsenrest" (p. 122).

"But larger doses would be necessary for rabbits here than are requisite for the egress of strains which are not fixed" (p. 127). One might suppose that Ehrlich was speaking about the escape of unfixed strains of trypanosomes from rabbits. What he did say was "doch waren beim Kaninchen hierfür grössere Dosen erforderlich als für den nicht-festen Ausgangsstamm" (p. 126).

"Thus, for example, the usual *Trypanosoma Lewisi* has a high arsenic-fixed origin" (p. 128). The intermingling of German and Latin was apparently too much for the translator: "So ist z. B. das gewöhnliche *Trypanosoma Lewisi* ab origine von hoher Aresenfestigkeit" (p. 126).

"Doses under 40 mgrms. per kilo. already resulted in pronounced intoxication. Quantities of 50 to 58 mgrms. produced no phenomena of intoxication in seven cases" (p. 129). That reads like a paradox. "Dosen unter 40 mg. pro Kilogramm Körpergewicht nicht imstande sind, in jedem Fall eine daurende Sterilisierung auszulösen, während Gaben über 60 mg. pro Kilogramm schon ausgesprochene Intoxikation zur Folge hat. Mengen von 50-58 mg vermochten bei 7 Fällen keine Vergiftungserscheinungen auszulösen" (p. 128). It would appear that the fear that he might forget to transform a "schon" into an "already" had caused the translator to entirely overlook the very important matter of 60 mg.

"Hyperaesthesia" (p. 133) for "Ueberempfindlichkeit" (p. 132). That is a perfectly good translation in certain cases, but not when one is speaking of an increased susceptibility to a drug.



Anyone who wishes to amuse himself can find other Weber-Fieldisms. The value of the subject matter of the volume is such that it should be made available to those who do not read German in more scholarly English. Upon one other point the reader of German has the advantage. The original is listed at seven marks, the translation at four dollars.

O. T. S.

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A Treatise on Diagnostic Methods of Examination. By Prof. Dr. Hermann Sahli, Director of the Medical Clinic, University of Bern. Edited, with additions, by Nathaniel Bowditch Potter, M. D., Asst. Professor of Clinical Medicine, College of Physicians & Surgeons, New York. Octavo of 1229 pages, containing 472 illustrations. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, \$6.50 net; half morocco, \$8.00 net.

Many textbooks on physical diagnosis have been published in recent years. The majority of them are simply compilations from the literature, contain little that is new, and seldom give the personal experiences of the writers. They are very disappointing to the reader who expects to find in them a discussion of the theories on which the physical signs are based, or their significance. The fifth edition of the distinguished Swiss clinician's book on diagnostic methods is by far the most exhaustive book on the subject of diagnosis that has yet been written and the major portion of its contents is derived from the experience of the author and represents his own personal views and observations. This second English edition is a translation of the fifth German edition and the translators have done their work well. Here and there throughout the book they have added footnotes which have increased the value of the book. So much new material has been added that it would be impossible in a review to mention it all. It ought to be noted, however, that the chapters on icterus, hemodynamics and the blood have been entirely rewritten. The section on aphasia has been thoroughly revised and P. Marie's conception of aphasia is criticised adversely. This was to be expected as his views have recently received little support from neurologists.

Though laboratory methods of diagnosis are fully discussed, the author has laid great stress upon the ordinary physical examination of a patient. If the reviewer were to mention any chapter worthy of special commendation it would be that on the examination of the nervous system. In the ordinary textbook on physical diagnosis, this branch of internal medicine is much neglected, and the student is led to believe that this part is too difficult for him. This probably more than anything else has led to a neglect of the study of this important field.

This book on diagnostic methods can be recommended as the best book in every respect on this important subject. J. P.

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Modern Treatment: The Management of Diseases with Medicinal and Non-Medicinal Remedies. By Eminent American and English Authorities. Edited by Hobart Amory Hare, M. D., Professor of Therapeutics and Materia Medica, Jefferson Medical College, Philadelphia; Physician to the Jefferson Hospital; assisted by H. R. M. Landis, M. D., Medical Director to the Phipps Institute for Tuberculosis and Physician to the White Haven Sanatorium. In two very handsome octavo volumes, comprising 1800 pages, with numerous engravings and full page plates. Price per volume in cloth, \$6.00 net; half morocco, \$7.50 net. Lea & Febiger, Publishers, Philadelphia and New York, 1911.

It is a notable fact that none of the treatises on therapeutics is entirely satisfactory. The best that can be hoped for in such a work, is a clear exposition of therapeutic aims and principles, and second, a large outline of the methods by which these aims may be best accomplished. On the whole the second volume of Hare's system fulfils these require-

ments very well, and will therefore be a useful reference book.

Some of the articles are of especial worth and deserve specific mention. The section on Malarial Infection by Charles F. Craig is a compact and complete treatise on the rational treatment of malaria, based on the great experience of the author, who is undoubtedly one of the leading authorities on the subject.

James Mackenzie has contributed the article on the Treatment of Heart Disease which is in every way admirable. In a clear and pleasing style the author outlines the therapeutic measures which are useful in diseases of the heart, pointing out the physiological and pathological indications for the use of such measures.

The article on the Treatment of Diabetes Mellitus, by Elliott P. Joslin, is based on the author's very large experience with the condition. The rationale of the treatment of diabetes is set forth in an excellent manner, due stress being placed on the importance of care and detail in the handling of the condition. The discussion of the principles of treatment, and of the means by which results are to be obtained is most satisfactory and convincing.

R. D.

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**Progressive Medicine, Vol. I, March, 1911.** A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, 355 pages, with 18 engravings. Per annum, in four paper-bound volumes, containing over 1,200 pages, \$6.00 net; in cloth, \$9.00, net. Lea & Febiger, Publishers, Philadelphia and New York.

This volume gives a good summary of the important articles that have appeared in the literature on the Surgery of the Head, Neck and Thorax; Infectious Diseases, including Acute Rheumatism, Croup, Pneumonia and Influenza; Diseases of Children; Rhinology and Laryngology; Otology. The papers selected for summary are well chosen. One pleasing feature of this publication is the fact that the same authors have written the reviews for a great many years so that there is a continuity in their writings from year to year. It should be read by every physician as it will serve to refresh his memory on the various articles that he has read during the year.

J. P.

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**Makers of Man. A Study of Human Initiative.** By Charles J. Whitby, M. D. (Cantab.) With 47 halftone and other plates, pp. 424. Reiman Company, New York, Publishers. Price, cloth, \$3.00.

This book is one in which the author states that he has essayed the experiment of dealing with the lives of great men as problems which are capable of elucidation. He believes that it is time biography was taken seriously as a department of science, and that biographers began to realize their responsibilities as purveyors of the raw material of inductive psychology. The results of this inquiry are considered to be a "demonstration of the predominance of a super-mechanical, super-physiological spontaneity in the determination of human careers."

Study has been made of the lives of 40 eminent men. From this list it was aimed to exclude any "second-rate personalities." This group was naturally divided by the author into four classes of men, comprising, (1) those whose motive was ambition—men of action—e. g., Caesar, Charlemagne, Cromwell, Napoleon, Lincoln; (2) those who aspired to a high ideal standard of beauty or fitness—the aesthetic—such as artists, poets, musicians, e. g., Titian, Goethe, Turner, Beethoven; (3) those who were philosophers or scientific discoverers—the intellectual—e. g., Galileo, Hegel, Newton, Darwin; (4) those who were religious founders, social reformers—the ethical—e. g., St. Paul, Mahomet, Luther. That this classification is not sharply defined, that the types overlap is emphasized by the writer.

Each of these groups is studied and compared in regard to family



history, physical characteristics, natural vocation, development of purpose, conduct at crucial moments, and the relation of great defects in conduct and character to other great qualities in these great men. Some interesting points are brought out. Parents of great men, taken collectively, are found not to be very prolific, and there seems to be a gradual diminution in the size of families as one proceeds from the first or most primitive group (men of action) to the last or ethico-religious group. Evidence points out that great men come early in their respective families, that is, as the second or first child. The average longevity, excluding four men who died by violence, was over 65 years. Tuberculosis was noted as a frequent accompaniment to greatness, and, of this, the author has to say that he is decidedly of the opinion that a tuberculous or strumous taint is in some ununderstood way a favoring condition of certain types of aesthetic and intellectual capacity.

In a concluding chapter the author sets forth his views regarding individuality, "giving speculative imagination the license it may, on occasion, justly demand." He has decided ideas regarding "the dry as dust philosophy of Spencer," and is enthusiastic over the teachings of Leibnitz.

One is warned in the preface that the author's ideal in this work is not "to write in words of not more than two syllables, making no sort of demand on the culture or intelligence of its readers." Some of it is hard to follow, but much of it is of great interest and distinctly instructive to anyone who desires to know intimately the lives, and the influences controlling them, of these individuals. It is to be hoped that others in presenting future biographies, may be directed by the trail blazed by this author.

C. W. S.

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The Treatment of Syphilis with Salvarsan. By Dr. Wilhelm Wechselsmann, of Berlin. With an Introduction by Professor Dr. Paul Ehrlich of Frankfurt-on-Main. Only Authorized Translation by Abr. L. Wolbarst, M. D., of New York. With 15 textual figures and 16 colored illustrations. Rebman Co., New York and London. Price, cloth, \$5.00.

This is a treatise of some 170 pages, which discusses in a thorough manner the use of salvarsan. The foreword is written by Ehrlich himself, and it is to be noted by the overlyenthusiastic that he admits the impossibility of effecting complete sterilization in all cases. The experimental work with practical bearing is given quite fully. The writer recounts his own experiences with the use of the drug in 1400 cases and reviews the literature very thoroughly. The various methods of administration are described in detail.

A number of colored plates are included. These show the appearance of well-marked lesions before and after the use of salvarsan. The actual need for this is scarcely apparent. It savors somewhat of the "before and after taking" patent medicine advertisement, and must account to some extent for what seems to be an unnecessarily high price.

C. L. C.

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Case Histories in Pediatrics. A Collection of Histories of Actual Patients Selected to Illustrate the Diagnosis, Prognosis and Treatment of the most Important Diseases of Infancy and Childhood. By John Lovett Morse, A. M., M. D., Assistant Professor of Pediatrics, Harvard Medical School, Associate Visiting Physician at the Infant's Hospital and at the Children's Hospital, Boston. Octavo, 320 pp. Illustrated. Price \$3.00. W. M. Leonard, Publisher, Boston, Mass.

In this volume the author presents a record of cases encountered in practice, which gives the reader, in book form, a comprehensive idea of the method of case teaching, which he has so successfully used for several years with his Harvard classes.

The cases are grasped systematically to cover the entire field of pediatrics, accent being placed only upon the pronounced characteristics of each disease, and no effort made to treat the subjects exhaustively. In each case the history, symptomatology, physical examination, diagnosis, prognosis and treatment are considered, and the reader is given, in few words, the essential points.

Most of the cases presented are quite typical while difficulty in diagnosis is naturally found in those with contradictory or ambiguous signs. Nevertheless, for so small a book, the points of differential diagnosis are exceedingly well brought out. This method of teaching is without question an effective one, and a book embodying it as successfully as this one does, cannot but find a prominent place in pediatric literature. C. P.

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**Diagnosis and Treatment of Diseases of Women.** By Harry Sturgeon Crossen, M. D., Professor of Clinical Gynecology, Washington University; Gynecologist to Washington University Hospital and Director of the Gynecological Clinic; etc. Second edition, revised and enlarged, with 744 engravings. C. V. Mosby Co., St. Louis. 1910.

As the title indicates, special emphasis has been laid upon the diagnosis and treatment of diseases of women and the author has purposely omitted the details of major operations. The book is especially suitable to the undergraduate and to the general practitioner. Special stress has been laid upon the non-operative treatment although the importance of operative procedures in certain conditions is clearly pointed out. A specially commendable chapter is that dealing with pessaries, the correct use of which is, as a rule, very imperfectly understood by the average physician. The aftertreatment in operative cases receives due consideration since, in cases operated upon outside the hospital, the supervision of these often falls upon the general practitioner.

The illustrations are very numerous and a special feature has been made of them and rightly so, as nothing is more important in making clear the subject. The majority of these are excellent and many of them are original. A large number have been taken from standard works on gynecology for which due credit is given: the original plates have not been used but new halftones have been prepared from the illustrations; many of these reproductions are far from satisfactory and might, with advantage, have been omitted. Aside from this feature the book is eminently satisfactory.

W. H. W.

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### Medical News.

**C. H. Chetwood** will remove his offices to his residence, 25 Park Avenue, on June 1, on which date his professional association with E. L. Keyes and E. L. Keyes, Jr., will expire.

**The Charity Hospital Medical Society** met Wednesday, April 5, 1911. The program was as follows: 1. Presentation of Clinical Cases: Surgical, J. D. Osmond; Medical, R. B. Metz. 2. Symposium on Chronic Nephritis: Physiology, P. Sanford Bailey; Pathology, Paul G. Moore; Clinical Symptoms, N. S. Banker; Diagnosis and Treatment, W. H. Merriam.

**The St. Alexis Alumni Association** met at the Hollenden Hotel, April 6, 1911. The program was as follows: 1. The Use of Iodin in the Treatment of Syphilis, Geo. Ashby. 2. The Use of Mercury in the Treatment of Syphilis, W. J. Manning. 3. Hygiene in the Treatment of Syphilis, A. P. Scully. The discussion was opened by W. B. Laffer.

**The Lakeside Hospital Medical Society** held its fifty-fourth monthly meeting Wednesday evening, April 26, 1911. The program was as follows: 1. Presentation of a Case of Goiter, C. F. Hoover. 2. The Nature and Methods of Transmission of Trypanosomata, O. T. Schultz. 3. Congenital Retroposition of the Uterus in which Anterior Replacement is Contraindicated. C. D. Williams. 4. Presentation of a Case of Abdominal



Tumor, H. L. Taylor. 5. Presentation of a Case of Retroperitoneal Sarcoma, C. W. Wyckoff. 6. Presentation of a Case of Favus with Demonstration of the Parasite, H. N. Cole. The following officers were elected: President, C. F. Hoover; Vice-President, C. E. Briggs; Secretary, H. O. Ruh.

**I. O. Denman** has opened an office in the Ohio Building, Toledo, and will limit his practice to diseases of the eye, ear and throat.

**The City of Toledo opened its Bacteriological Laboratory** March 30, 1911. The medical profession of Toledo is to be complimented upon their victory over "small politics," which has heretofore prevented the people from enjoying the benefits of a public laboratory.

#### **Meetings of the Academy of Medicine of Toledo and Lucas County:**

The Surgical Section met Friday, March 24, 1911. The program was as follows: 1. Some of the Pathological Results of Anesthetics, C. E. Price. 2. Anesthesia in Relation to Childhood, Geo. Chapman. 3. Nitrous Oxid Anesthesia with Presentation of a New Apparatus for its Administration, E. I. McKesson. Discussion opened by Will Fisher and Gratian Whitwham.

The Eye, Ear, Nose and Throat Section met Friday, March 31. The program was as follows: 1. Indications for the Removal of Tonsils and Adenoids, A. L. Steinfeld. 2. Operative Technic for the Removal of Tonsils and Adenoids, J. J. Lasalle. The discussion was opened by Drs. Hubbard, Leslie and Morgan.

The General Meeting of the Academy was held Friday, April 7. The program was as follows: 1. Financial Aspects of the Practice of Medicine, James A. Duncan. 2. In the Market Place—A Bit of Muckraking, C. D. Selby. 3. Postgraduate Work, W. H. Snyder. Immediately following the meeting there was a buffet luncheon for all members at the Boody House.

The Pathological Section met Friday, April 14. The program was as follows: 1. Infectious Granulomata—A Comparative Study of the Lesions of Tuberculosis, Syphilis, Actinomycosis, Leprosy and Rhinoscleroma, with Stereopticon Demonstration, W. J. Stone. 2. Infections of Accessory Sinuses in Scarlet Fever, with Stereopticon Demonstration of X-Ray Findings, Thomas Hubbard. The discussion was opened by J. J. Lasalle.

**The Trumbull County Medical Society** met at Ravenna, April 13. W. I. LeFevre gave a paper on the Roentgen Ray in Diagnosis and Treatment, with Stereopticon Demonstration of Cases.

**The Tuscarawas County Medical Society** met in Uhrichsville, Tuesday, April 4. The program was as follows: 1. Sepsis, J. F. Fox, Toledo. 2. Prevention of Septic Infection, C. D. Kurtz, New Philadelphia.

**The Muskingum County Medical Society** met at Zanesville, April 12. The following program was presented: 1. Eclampsia, H. T. Sutton. 2. Some Notes on Salvarsan, E. C. Brush. 3. Report of a Case of Pyelonephritis with Operation, and Presentation of Specimen, C. U. Hanna.

**The American Proctologic Society** will hold the Thirteenth Annual Meeting at Los Angeles, Cal., June 26 and 27, 1911. The headquarters and place of meeting will be at the Hotel Alexandria, corner Fifth and Spring Streets. The preliminary program gives promise of an extremely interesting session.

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#### **Deaths.**

**Albert Rufus Baker**, Cleveland, Ohio, died April 5, 1911, aged 53.

**William McMillan**, Massillon, Ohio, died February 12, aged 77.

**Frank E. Kitzmiller**, Piqua, Ohio, died March 27, aged 61.

**Addison Snively**, Cleveland, Ohio, died April 9, aged 66.

# The Cleveland Medical Journal

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## I. Peritoneal Effusion (Ascites) in Typhoid Fever.

## II. The Physical Signs of Exudate in the Peritoneal Cavity.

By ALEXANDER McPHEDRAN, M. D., Professor of Medicine,  
University of Toronto.

### I.

In 1908 I reported at the Association of Physicians six cases of ascites in typhoid fever (*American Journal of Medical Sciences*, November, 1908).

The first of these, a very striking one, occurred in a woman whom I sent into the hospital on account of severe bronchitis. Her temperature was high. Her illness proved to be due to typhoid fever of a severe character. The signs of ascites were first noted in the third week. The effusion became quite large so that there was no ground for doubt as to its existence. The quantity of fluid varied during the course of the disease, and disappeared with convalescence.

The other cases of that series were not so well marked, but the signs were distinct. Since then I have seen several more cases, in two of which the presence of the fluid was proved by operation done on account of perforation of the intestine. The first of these two I saw in consultation within a couple of hours after the symptoms of perforation had begun. The man had been long ill and was therefore thin, but he was quite clear mentally and not in much pain. The abdomen was not distended, and only slightly rigid. The signs indicated that the effusion rose to the mammillary line as shown by the fine fluctuation and the definite flatness to light percussion. He was operated on as soon

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*Read before the Academy of Medicine of Cleveland, April 21, 1911.*



as possible, and at my request the surgeon noted the quantity and character of the fluid. He found it to be a clear serous fluid, and as nearly as could be determined the quantity coincided with that demonstrated by previous examination. There had been no leakage of intestinal contents. The man made a good recovery.

The other case was that of a man in the hospital. My house-physician had noted the signs of fluid before perforation occurred. He was operated on within an hour. The degree of exudate was found as indicated by the previous examination, there having been no tangible leakage of intestinal contents. In this man a fistula formed and the recovery was tedious, but, in the end, complete.

During the last year several more cases with signs of moderate effusion were seen, but none were fatal, although the course was rather severe.

The cause of the exudate is somewhat uncertain. However, its occurrence should not be matter for surprise seeing that the deeper ulcers must cause congestion, which means some degree of inflammatory exudate in the peritoneum covering their bases. Even this slight degree of inflammation must cause some serous effusion. Free exudate occurs in other conditions in which less irritation to the peritoneum is probable, e. g., in serous cysts, as of the parovarium. It is highly probable that unsuspected serous exudates occur in a great variety of conditions. Recently it has been found that there is considerable exudate in healthy rabbits with young, there having been no other cause found to account for the exudate. It is probable that some peritoneal effusion is of frequent occurrence in pregnant women. Quincke long ago drew attention to the occurrence of such effusion in young anaemic women with the first menstrual periods.

That the balance between the degree of exudate and absorption is easily disturbed is shown by the variation in the quantity of exudate found from day to day in many cases of gross effusion from portal obstruction and tuberculous peritonitis. It is well recognised that even a moderate degree of venous distension from local or general causes will give rise to an increase in the serous contents of a serous cavity or an areolar tissue. Small quantities of serum in pleural or pericardial cavities are difficult, and often impossible, of demonstration;

in the peritoneal cavity, if the abdominal wall is thin and relaxed, the existence of free exudate is more easily determined.

## II.

The existence of peritoneal effusion, when copious, is usually so easily determined, that little thought has been given to its demonstration. It is not surprising therefore that small effusions should be so frequently overlooked.

Fluctuation furnishes the chief evidence of the presence of peritoneal effusion. The term fluctuation is, however, used so indefinitely that it has come to be applied to a variety of conditions. Originally it was applied to the wave-like impulse felt by the hand held in contact with one side of a sac filled with fluid, while it was tapped on the other. Now it is often applied to the sensation to touch produced by pressure on any part that yields easily and is readily displaced by moderate pressure, especially if suddenly applied, as, e. g., fluid in a cavity, soft tumours, abdominal contents, subcutaneous fat, and even thick relaxed muscle.

With the patient lying on the back in peritoneal effusions of moderate or small quantity, there is always fulness of the flanks, the degree of fulness depending not only on the quantity of fluid, but also on the relaxation and thinness of the abdominal wall. If the abdominal wall is relaxed there is always more or less flattening of the abdomen anteriorly; if the walls are tensely distended this appearance is obscured. If there is much subcutaneous fat the fulness is even more greatly obscured; oedema will also obscure it.

The flanks are felt to be full and tense and elastic at the back, less so at the sides. If there is no subcutaneous fat the lightest flip of the finger or of a pencil in front as far inwards as an uninterrupted layer of fluid extends, causes a sharply marked fine wave or "ripple" that is easily felt by the hand held in contact with the outer and posterior wall. Such *fluctuation* or "ripple" not only proves the presence of fluid, but also shows its extent, as it can be obtained on lightly tapping the abdomen as far from the palpating hand as the fluid is in uninterrupted contact with the abdominal wall, but not farther, as the intervention of even a coil of intestine will arrest it. This fine fluctuation wave or "ripple," if definitely felt, leaves no room



for doubt that fluid is present. Such fluctuation can be demonstrated in each flank, but not across the abdomen from flank to flank, unless the fluid so distends the abdomen as to raise the anterior abdominal wall away from the intestines and so permit a continuous layer of fluid to be formed in contact with the anterior wall from flank to flank.

The indistinct shock described by all books as produced by striking on one flank and felt by the hand on the other, may be obtained by less fluid than is required to distend the abdomen, yet there must be a large quantity present, and even then the wave is not definite, and a very similar sensation is produced by fat alone in the absence of fluid.

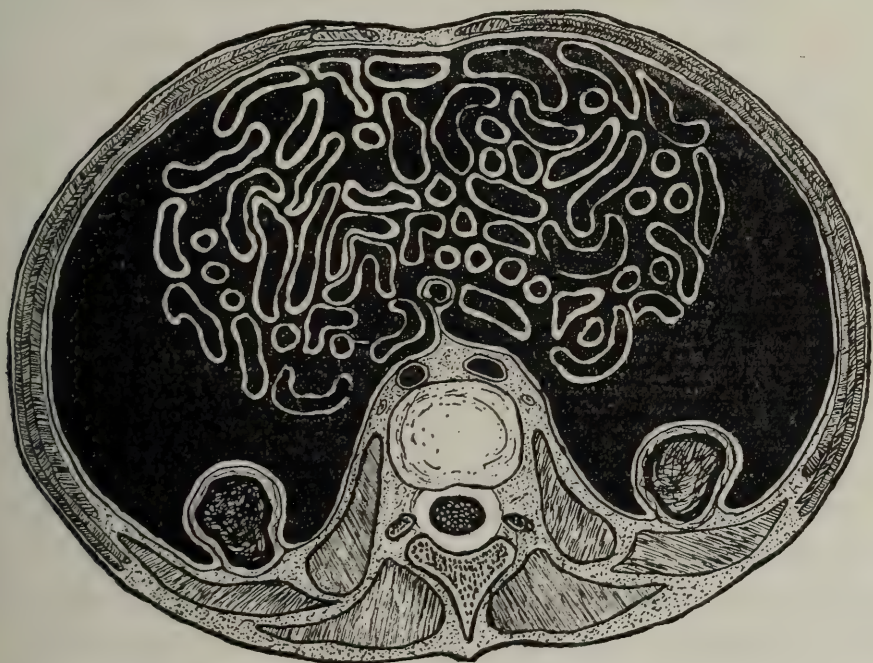
Similar observations are applicable to percussion of the abdomen. As ordinarily practised the abdominal wall is pressed so far inwards by the pleximeter finger as to pass through and come into contact with the submerged intestine so that it gives, when struck, a tympanitic note; and even if the abdominal wall is not sufficiently depressed to come into contact with the intestine, the layer of fluid remaining is not sufficient to wholly prevent the percussion wave from reaching the gas-containing loop of intestine and produce a certain degree of tympany, if the percussion blow is forcible, as is usually the case.

To demonstrate a thin layer of fluid beneath the abdominal wall, the pleximeter finger must be held rigidly in definite contact with, but not supported by, the abdominal wall, in order not to depress it, and the percussion blow should be very light so as not to cause a percussion vibration which will penetrate through the thin layer of fluid to the intestine.

Turning the patient on the side will cause the fluid to gravitate to that side if no mechanical obstacle intervene. Then the upper limit of fine "ripple" fluctuation and flatness of light percussion will be found to have risen nearer to the median line, and the dependent side of the abdomen to be fuller and rounder while the upper has fallen in, and is usually tympanitic.

There is a general misconception of the relation of the intestines to the fluid in the abdomen. The intestines are usually regarded as floating on the surface of the fluid as they would be if in an open vessel and thus not subject to the pressure on the free surface. But in the abdomen they are subject to the pressure of the anterior abdominal wall, so that the intestines are forced down into the fluid as it rises in the peritoneal cavity, the degree

of submerging becomes greater as the quantity of fluid increases and rises in the abdominal cavity. The greater the contents of the intestine, liquid and gaseous, the greater their volume and the more they will be submerged. It is further to be remembered that at the sides of the abdominal cavity lie the ascending and descending colon, and that they are loosely attached to the posterior part of the outer abdominal wall, so that, if filled with gas, they float up into the fluid, if not they lie on the posterior wall. As the fluid increases it presses on the flanks, which are always thin and lacking in tone, forcing them outwards and backwards by its weight, and causing them to become rounded and elastic to the hand. In such a condition a ripple-like wave is conveyed to the hand placed on the flank, if the abdomen is struck a light tap anywhere over the free surface of fluid, if there is no interruption of the surface of the fluid between the point of impact and the hand.



It is easily seen also how the percussion note is quite flat even to heavy percussion at the back where the exudate is massed and the abdominal wall thick. As we ascend the side and front of the abdomen both the wall and the layer of fluid become thinner, so that tympany is obtainable and becomes more and more marked, either from a firmer stroke or increased pressure by the pleximeter finger forcing the wall of the abdomen inwards nearer to the gas-containing bowel. This is clearly indicated in the accompanying diagram of a transverse section of the body at the umbilicus.



It is obvious that percussion affords valuable information, but if we are to obtain the greatest assistance from it we must "knock" lightly.

With a moderate degree of effusion, if the abdominal wall is thin, it is very easy to perceive the ripple-like fluctuation if the hand is not placed too near the spine where the wall formed by the quadratus lumborum muscle is thick and tense. It is easy to obtain the flat note on light percussion, and the tympanitic one with heavier percussion, or with the light percussion if the pleximeter finger be pressed slightly into the abdomen. The thicker the abdominal wall, whether from fat, muscle or oedema, and especially if there is much loose subcutaneous tissue from which fat has been absorbed, the more difficult it is to determine the existence of fluid by any means at our disposal. That these means of examination will, under favourable conditions, enable us to demonstrate a small quantity of fluid I have proved by many years' experience. The method of examining advised by all the textbooks to obtain fluctuation is futile, by tapping on one side of the abdomen with one hand while the other rests on the opposite side, except in cases in which the quantity of effusion is so great as to distend the abdominal wall beyond the reach of the intestines, then the "ripple" wave can be obtained from flank to flank; but this is a condition in which the condition is so obvious as scarcely to need demonstration.

Even if the correctness of these views is granted, the importance of the facts may be questioned. It may be regarded as a refinement of examination that is unnecessary in these days of advanced laboratory and other methods. But especially for the reason that laboratory methods are so advanced and developing so rapidly, it is probable that at no period in the history of medical science and practice was exactitude of clinical, that is bedside, investigation, in greater need of inculcation and practice than in the present. If the clinical conditions are not as carefully investigated as those of the laboratory, we will be in danger of losing sight of the *patient* in our *laboratory* search for cause and effects.

### Trifacial Neuralgia.

By F. E. BUNTS, M. D., Cleveland.

The severest form of trifacial neuralgia, that commonly known as tic doreux or epileptiform neuralgia, must be considered as one of the most serious of all the neuralgias with which the physician or surgeon has to deal. The great fifth nerve with its three branches and its intimate connection with the sympathetic nerves, possessing as it does both the sensory and motor functions in certain parts of its distribution, may, through a great variety of causes, become the seat of an intractable disease which renders life practically unbearable.

The trigeminus arises by two roots, the larger one sensory, the smaller purely motor. It appears to contain trophic fibres also, for after complete division the mucous membranes of the mouth, nose and eyelids may ulcerate; taste and smell may be lost and sometimes a general ophthalmia may result. The two roots pass together through an opening in the dura, where the tentorium spans the petrous bone to the clinoid processes, and make a large ganglion, the Gasserian, sometimes incorrectly called the Casserian. From it arise three branches, the ophthalmic, and superior and inferior maxillary. The central nuclei of the trigeminus appear to connect with those of all the motor nerves except the abducens, thus explaining its remarkable reflex relations.

The ophthalmic or first branch, is purely sensory and receives sympathetic fibres from the cavernous plexus and gives branches to the patheticus and the other motor nerves of the orbit, thus giving sensation to the muscles. The supraorbital escaping through the supraorbital notch is the most important of its branches and is distributed to the eyelid, brow, periosteum and mucous membrane of the frontal sinus. Those parts distributed to the periosteum are closely confined by its dense structure and thus peculiarly liable to suffer in neuralgia, this form being designated sometimes as brow ague.

It is an interesting fact that the area of distribution of the ophthalmic division is about that affected in a case of acute coryza.

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*Read before the Clinical and Pathological Section of the Academy of Medicine, of Cleveland, April 17, 1911.*



The superior maxillary or second division is a purely sensory nerve and makes its exit from the canal at the infraorbital foramen as the infraorbital nerve. Its terminal branches radiate to the eyelid, nose and lip and from the pes anserinus minor. It unites intimately with the twigs of the seventh or facial nerve. Neuralgia of this nerve is the severest form affecting a single trunk. The painful points are chiefly over the malar bone and at the infraorbital foramen. The inferior maxillary or third division is the largest of the three trunks and is a mixed nerve, the motor nerve uniting with it just after its escape through the foramen ovale. The otic ganglion of the sympathetic is here attached to the median surface. The lingual or gustatory, one of the most important branches, receives the chorda tympani from the facial and is distributed to the mucous membrane of the mouth and the papillae of the anterior two-thirds of the tongue, sharing with the glossopharyngeal the function of taste. When it is paralyzed, food reaching the affected side seems to have escaped the mouth.

The inferior dental, another important and the largest branch passes through the inferior dental canal in the lower jaw to the mental foramen where it divides, one branch escaping as the mental nerve and the other continuing on to supply the incisor teeth. Irritation of the motor fibres of the fifth nerve causes trismus, and irritation or inflammation of one of its branches may cause associated pain or even inflammation in other branches.

The mucous membranes of the nose, mouth, front of tongue and part of the pharynx are also rendered insensible by the paralysis of the trigeminus.

With this brief outline of the general anatomical distribution of this nerve we can pass to a consideration of the more important symptoms and causes of this form of neuralgia. While the young are not entirely exempt from neuralgia yet it is a disease most commonly affecting those in middle age, occasionally occurring in old age. Naturally it may be caused by contiguity to some other tissue which is the seat of inflammation as in dental caries or necrosis of bone along its course, or be due to the presence and pressure of abnormal growths as of bony or other tumors. Aside from such obvious causes we must, I believe, take into consideration heredity and predisposition. The

nervous and hysterical are prone to develop it. Cold and damp climates seem to predispose to its development and naturally anything which lowers the general body resistance or health acts in a measure as an exciting cause. Among such causes might be enumerated malarial fever, anemia, auto-intoxication, typhoid, lead poisoning, diabetes. Exposure to cold sometimes appears to be the immediate exciting cause but probably could be such only when there is a strong predisposition to the development of the disease.

The symptoms of trifacial neuralgia can scarcely be confused with those of any other disease. In its early history we find it confined to the distribution of its individual branches most commonly perhaps to the second division, but later every point of its wide distribution may be involved and the suffering become so intense as to render threats of suicide not uncommon. Remembering its distribution to the teeth, it is not surprising that we find many of the sufferers from this malady are practically toothless, having submitted to the extraction of one tooth after another in the belief that the trouble had its origin there. No doubt in some instances such is the case and the eruption of a wisdom tooth, or a carious tooth, or an unskillful and bungling attempt at removal of a tooth, injuring the alveolar process or badly lacerating the mucous membrane, may be the exciting cause but this must be regarded as the exception rather than the rule and the removal of perfectly sound teeth in the hopes of relieving the neuralgia should never be resorted to. In one very severe and intractable inferior dental neuralgia in a patient 78 years of age who had worn double sets of false teeth for years, I found upon chiseling through the angle of the jaw an unerupted third molar pressing upon the inferior dental nerve. An x-ray observation would of course, have revealed this, and where there is any suggestion of the trouble arising in the jaw itself an x-ray examination would undoubtedly be of considerable value.

The pain occurs in irregular paroxysms precipitated by the most trivial causes, such as eating, drinking, touching the face, shaving, exposure to draughts, talking, etc. These paroxysms increase in frequency and severity and then sometimes subside for a few days or weeks, only to be renewed with even greater pain. It is astonishing how long this condition is often endured



before the patient will submit to operative treatment, but the time usually comes when deformity or even death is preferable to the agony of these attacks and the patient is then only too willing to undergo any operation that may bring relief or death.

The pathology of this condition is not invariably the same. Sometimes, as in other neuralgias, it is probably due to absorption or irritation, due to toxic products generated within the body. At other times, it is no doubt due to an ascending neuritis having its origin in some peripheral trauma or irritation and in still other cases it has been shown to be due to central growths or lesions. Its varied pathology no doubt accounts for the varieties of treatment proposed for its relief, and should naturally make us particularly anxious to demonstrate clearly, if possible, its origin and base our treatment upon an accurate conception of its pathology.

Peripheral operations would no doubt prove futile in the presence of central lesions and would be unnecessarily harsh in something that could be relieved by constitutional measures and yet might be perfectly and permanently curative in those cases due to a local neuritis from peripheral irritation.

In considering the treatment, it is necessary to view it first from the medical standpoint. Here constitutional defects demand first attention, rheumatism, gout, syphilis, alcoholism and other sources of systemic poisoning demand appropriate treatment. Undoubtedly the most important hygienic measures are sunlight and fresh air, good nutrition, freedom from care and worry and most important of all proper regulation of the excretory functions. Castor oil has been highly and justly lauded as an important remedial agent and should be given in liberal doses and continued over a period of several weeks, then careful feeding, attention to the digestive functions, and the administration of iron, arsenic, quinin or strychnin, as may be indicated, will complete the cure in the incipient cases and even in some of the more protracted ones, provided the disease be not of central origin, and if the neuritis be still confined to the branches and not to the ganglion. When these measures fail, nerve stretching, neurectomy, injections of alcohol or osmic acid, and finally removal of the Gasserian ganglion must be considered. In referring to the cases of trifacial neuralgia of which I have

a record, I find that in six instances, the first branch; in nine the second branch; and in six, the third branch was involved. While the first and second and the second and third or the first second and third branches were at times simultaneously involved, in no case did I find the first and third involved simultaneously. The average age was 54 years though it ranged from 29 to 78 years, and  $41\frac{3}{4}\%$  were males,  $58\frac{1}{4}\%$  females; most of the males were farmers while the women gave their occupation uniformly as housewives. The duration of the attacks varied from 45 days to 15 years, though it must be explained that in a number of these cases there would be intervals of improvement which would reconcile the patient to a renewed attempt at recovery without operation.

The symptoms in all the cases consisted of extreme, agonizing, burning pain usually with muscular spasm and occasionally with an herpetic eruption corresponding somewhat to the area of distribution of the involved branch or branches. Continual lachrymation is often present in severe involvement of the first and second branches. In every case in which the second or third branch was involved, one or more and sometimes all the teeth, both upper and lower, on the affected side had been extracted. In some, large quantities of morphin were being taken with very imperfect relief, while in others, almost continuous inhalations of chloroform were resorted to during the height of the attacks. In two of the worst cases in which all three divisions of the nerve were involved, the Gasserian ganglion was removed with permanent relief. In two cases of involvement of the second and third divisions, Meckel's ganglion was removed but one of these returned in a month with recurrence of pain in the third division necessitating a neurectomy of the inferior dental after which the relief was permanent. In all the other cases superficial neurectomy with alvulsion of from 1 to  $2\frac{1}{2}$  inches of the nerves was performed, and in the last two cases this was supplemented by the injection of absolute alcohol into the canal after the neurectomy. In all the cases complete relief from pain followed within a few days and they were all discharged from the hospital in from ten days to three weeks absolutely free from pain. This does not mean that there was no recurrence: this has occurred to my knowledge in a limited number. In one it recurred in the second branch after an



apparently thorough avulsion and was relieved by a subsequent operation laying bare the infraorbital foramen, and chiseling away its edges after thoroughly scraping away every particle of soft tissue about the foramen. One or two have had slight returns which have responded to a thorough course of castor oil and constitutional treatment. It is possible that in some it may have returned permanently and fallen into the care of others but I have not seen any of them. Notwithstanding the disrepute which peripheral operations upon terminal branches have suffered, I am convinced that they are extremely beneficial in many otherwise intractable cases. I can see no objection to giving these operations a trial before resorting to a Gasserian ganglion operation. They are extremely simple of execution, operation on all three divisions can, if necessary, be done under a slight anesthesia in a very short time and with practically no shock and little hemorrhage. I have had no experience with the subcutaneous injection of various fluids into the nerve trunks or foramen of exit. Their exposure by incision is simple, precise and with subcuticular suture the slight incision leaves practically no scar. Avulsion of the nerve, followed by injection and possibly, as suggested by C. H. Mayo, plugging of the foramen of exit with soft metal seems to me to be the ideal method to start in the cure, but it is only the start for it must be followed by an eliminative, hygienic and constitutional treatment in order to get anything approximating permanent results. I believe that one of the great drawbacks to the success of the peripheral operations is the fact that the relief from pain is so great that it is difficult to force upon the patient the fact that he is not cured, but that his cure is just begun.

In regard to the technic of the peripheral operations there is little to be said: a horizontal incision  $\frac{3}{4}$  of an inch to 1 inch long over the supra or infraorbital foramen is quite sufficient for exposure of the nerve; hemorrhage is free but easily controlled and must be entirely stopped in order to get a clear field. The nerves are deep, next to the periosteum and must not be cut before they are differentiated, hooked up with a blunt hook, grasped with a Kocher avulsion forceps and gently twisted till as much as possible of both the proximal and peripheral branches are rolled upon the forceps, when a final twist tears it loose far up into the canal; after this the canal may be injected

as far as possible with alcohol or osmic acid and the wound closed. In operations upon the inferior dental, I have with one exception always selected the inferior angle of the jaw as the point of attack, making a curved incision around it and clearing away everything for a distance of  $\frac{3}{4}$  of an inch up the ascending ramus and by trephing near the middle of the denuded space the inferior dental canal is laid open and the nerve may be picked up with a blunt hook and then grasped with forceps and avulsed as before. Better access to the nerve may be gotten by opening the ascending ramus by chisel or trephine just below the notch, but there is considerable danger of fracturing the jaw at this point. It gives, however, an excellent opportunity for the deep injection of alcohol. I have twice operated for the removal of Meckel's ganglion by the transmaxillary route but the results of the operation are not commensurate with its difficulties and I should in future prefer to operate upon the second or third branches separately.

Now, when the peripheral operations followed by conscientious constitutional treatment, as before outlined, have failed, and fail they will in a small number of cases, we still have left as a final resort the Gasserian ganglion operation, and in a very limited number of cases, particularly when the neuralgia results from intracranial trauma or disease, this should undoubtedly be the primary operation. It is not a simple operation; the site attacked is deeply seated; sinus and artery are in close proximity; oozing or profuse hemorrhage often obscure the field; packing and even secondary operations are necessary, and no one should undertake it without abundant preliminary experience in operations upon the cadaver; but even this gives but little idea of the annoying complications that may arise during the operation upon a living subject; and even with the most perfectly developed technic accidents may arise that make this always one of the grave major operations of surgery and one not to be urged until other reasonable and relatively harmless expedients have been tried.



## Extra-uterine Pregnancy at Full Term with Autopsy Eighteen Years Later.

By N. STONE SCOTT, M. D., Cleveland.

The specimen I present tonight is from a case which is to me of great interest, although 18 years has elapsed between the diagnosis and its confirmation. There is a certain sense of satisfaction in being able to report this history and exhibit this specimen which demonstrates the diagnosis made 18 years before the postmortem examination, although all the leading actors of that far away drama, except myself, are now numbered with the silent majority.

History of the case: Mrs. W., aged 36 years, a large, well built woman, married 15 years without becoming pregnant, conceived in the fall of 1891; she noticed nothing of especial significance during the pregnancy, although she did have considerable pain during the early months. At the end of the nine months, labor pains came on and lasted two days, when after the extrusion of a small amount of tissue or clots from the uterus, they ceased. The midwife, who was attending the case, then made up her mind that something was not right and the family called the late Dr. Townsend to take care of her; he made a diagnosis of extra-uterine pregnancy at term, with a living child.

A few days after the cessation of the labor pains I was called in consultation; at this time her abdomen was not noticeably prominent, this was due to the fact that she was a large, powerfully built woman and that there was not a large amount of liquor amnii. The uterus was pushed well to the right, slightly larger than normal and could be made out to be independent from the mass filling the pelvis to the left of the uterus. The fetus was easily palpable and at this time the motions were quite vigorous. The heart beats were distinct and could be easily made out the last time I saw her, 10 days after the pseudo labor.

A diagnosis of a left sided extra-uterine pregnancy, with a living fetus, was made and an immediate operation advised. While the patient and her husband were extremely anxious for a living child they could not make up their minds to an operation. One of the older surgeons, now dead, was called in; without giving us a chance to meet him, he ridiculed the idea of pregnancy to the people and said that the young doctor was too anxious to use the knife; he did add however, as he was leaving, "You have a slight trouble with your left ovary and if it ever gives you any trouble come to me and I will fix it for you." I still believe that he knew the diagnosis of extra-uterine pregnancy was correct, but he sacrificed the baby's chances, and as it turned out the chances of the mother also. I hesitate to say willfully sacrificed

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them because the modern method of operating upon these cases was just coming in at that time and he may have believed in the method taught in his day.

I did not again see the patient alive, but since she was a neighbor to a relative of mine and her appearance on the street was so striking as to cause general comment, I heard from her indirectly for a year and a half, during which time her abdomen enlarged enormously, so that she would lean with her head and shoulders well backwards to preserve her equilibrium, after this she disappeared from sight and I rather took it for granted that she had gone to a hospital, been operated upon and died; but such was not the case.

In the summer of 1910 I was asked to make a postmortem on the widow of an old soldier and was surprised to find that she was our long-lost patient. I could learn nothing about her since she disappeared from my sight 17 years before, except that her husband had died several years since.

At the time of the postmortem she was greatly emaciated; the head and spinal column were not opened; nothing of importance was found in the chest. On opening the abdomen the organs in the upper part of the cavity were apparently normal, but the pelvis was entirely sealed off by firmly organized lymph. No trace of any of the pelvic organs could be made out, all were apparently covered over. Into this mass dipped the rectum and to it the omentum was universally adherent, there were but slight intestinal adhesions, with the exception of those of the rectum, and these did not interfere with the functions of the small intestines.

The pelvic organs were removed entire by cutting through this organized tissue, close to the pelvic wall, and so hard was the plastic exudate that it was no small effort to remove them, even with the help of a good strong knife.

The uterus was found to be to the right, the bladder was thick walled, inflamed and contained about two ounces of turbid urine. To the left of the uterus was a cavity containing a quart or more of fetid pus and a mass of offensive material judged to be the remains of the fetus, although it did not contain any bones. Leading from this cavity to the rectum was a large, oval opening, one-third inch wide by an inch long, with a thick firm margin. From this fistulous opening to the anus, the rectum was intensely inflamed; from the fistula upwards the rectum was also inflamed for a considerable distance, but slightly, when compared with the condition below the fistula.

The kidneys were the seat of Bright's disease, which was the cause of her death and which had been due to an ascending infection from the bladder.

In the vagina was a large inflamed fibroid, having its origin in the posterior lip of the cervix. This was a condition which had arisen since the time I saw her when living.



From the postmortem examination it was evident that she had had a left-sided abscess which had ulcerated into the rectum and from which the excess of discharge could flow into the rectum; and that through this the fetus was discharged piecemeal when it disintegrated as a result of the septic process. There was present a severe cystitis, proctitis and nephritis. A plastic exudate entirely covered the pelvic organs, making adhesions between them and the neighboring loops of intestines and omentum.

It is not my intention to enter into a detailed discussion of all the questions this case might raise, but to simply call your attention to two or three principal points which the case illustrates or helps to decide. They are, first, in regard to the mother. What happens to her if she is not operated upon? Second, in regard to the child. When does it die? How long may the operation be delayed and the child still have a chance for its life?

An extra-uterine pregnancy may continue for an indefinite period. In the recent literature cases are reported from three to 24 years. Church<sup>1</sup> reports one of three years; Peterson<sup>2</sup>, six years; Patterson<sup>3</sup>, seven years; Mann<sup>4</sup>, eight years; Bovee<sup>5</sup>, nine years; Eagleson<sup>6</sup>, 10 years; Currier<sup>7</sup>, 14 years; Klingensmith<sup>8</sup> and Ansdale<sup>9</sup>, each, one of 17 years; Stankiewicz<sup>10</sup>, 18 years; Fulton<sup>11</sup>, 21 years; Bremken<sup>12</sup>, 24 years; while Kelley<sup>13</sup> says that an extra-uterine pregnancy may exist as a lithopaedion as long as 50 years.

All of the authors agree that the presence of an extra-uterine pregnancy is a source of danger to the mother, no matter how long it may have remained in her abdomen in a quiescent state. Mann<sup>4</sup> says, "It may be likened to a charge of dynamite, it takes only little to make it go off, and then the damage is apt to be serious."

When trouble comes it is almost always of an inflammatory nature, although the pregnancy may give trouble by interfering mechanically with some of the important organs, even then the difficulty is very prone to be associated with an inflammatory reaction, and is apt to result in a fistulous opening between the sac and the outside of the body, either direct, through the skin of the abdomen, or indirect, by opening one or more of the hollow organs.

This may occur shortly after the death of the fetus or not for years. Corus<sup>14</sup> reports an extra-uterine pregnancy open-

ing into the bowel in 14 months; Haggard<sup>15</sup>, one which perforated the bladder; Kime<sup>16</sup>, an entero-uterine fistula; Fenwick<sup>17</sup>, one which had fistulae between the bladder, bowel and sac; while Mann<sup>4</sup> reports one which, after remaining quiescent for eight years, perforated the bladder, the small intestine high up and the large intestine.

Leaving now the effect upon the mother, what happens to the fetus in the unoperated case in which the fetus has reached the age in which it is viable? To this question there can be but one answer, it must die, but just when this happens is not always the same, nor indeed are the authors agreed as to how late one may wait without sacrificing the life of the fetus; yet from an operative standpoint this is an important point. Many authors believe that the fetus dies at the time of the false labor, if it has not succumbed before; but that this is not always so is proved by my case and others. Barbour reports an extra-uterine fetus that died at five and a half months; Phillips, one at six months; Corus, at seven months; Cullingworth, at the eighth month; and Doran, one which died at the time of the false labor, which occurred at the eighth month. Rosenwasser reports a case in which the fetus did not die at the time of the false labor, but did die between that and two weeks later.

In this case of mine the fetus was known to be alive 10 days after the cessation of the false labor, but it is not known when it did die, owing to a lack of opportunity for observation.

This case illustrates the fact that an extra-uterine pregnancy, after going to full term, may continue to harrass the patient even for 18 years; that it is a constant source of danger and ultimately proves fatal by the inflammatory involvement of important organs. It demonstrates the fact that the fetus which has lived the full nine months does not necessarily die at the time of the false labor but may live for at least 10 days longer.

#### REFERENCES.

1. Church (A. L.): *Lancet*, Lond., 1895, I, 1181.
2. Peterson (R.): *Am. Jour. Obst.*, 1903, XLVII, 508.
3. Patterson (J. A.): *Pittsburg Med. Rev.*, 1896, X, 245c.
4. Mann (M. D.): *Buffalo Med. Jour.*, 1895-6, XXXV, 23-29.
5. Bovee (J. W.): *Trans. N. Soc. Virg.*, 1898, 203-211.
6. Eagleson (J. B.): *Med. Sentinel*, Portland, Or., 1902, X, 299.
7. Currier (A. F.): *Am. Gyn. and Ped.*, Bost., 1897-8, XI, 732-736.



8. Klingensmith (J. P.): Am. Jour. Obst., 1900, XLVII, 386.
9. Ansdale (W. J.): Am. Jour. Obst., 1898, XXXVIII, 748-751.
10. Stankiewicz (C.): Czasopismo, lek. lodz., 1899, I, 385-394.
11. Fulton: Proc. Oregon Med. Soc., 1894-5, 37-43.
12. Bremken: Am. Soc. méd-chir. d' Anvers, 1897, 225-231.
13. Kelly (H. A.): Operative Gynecology.
14. Corus (C. ): St. Louis Clinique, 1895, VIII, 143.
15. Haggard (W. D.): Am. Jour. Obst., 1904, L, 690-693.
16. Kime (R. R.): Weekly Med. Rev., St. Louis, 1890, XXII, 484-486.
17. Fenwick (E. H.): Brit. Med. Jour., Lond., 1904, II, 1739.

603 Citizens Bldg.

### Michel's Clamps for Closing the Skin Incision.

By HUNTER ROBB, M. D., Professor of Gynecology, Western Reserve University, Cleveland.

Every surgeon knows how difficult a matter it is to procure a suture material that is not only sterile to begin with but which will not itself become infected while approximating the skin surfaces. During the past three years and a half we have been using with a considerable amount of satisfaction Michel's clamps for closing the abdominal skin incision. Our experience makes us feel that in a considerable number of cases they can be substituted with advantage for the ordinary suture material for approximating the skin edges.

Some of the advantages to be derived from their use are as follows:

1. The clamps can be easily rendered sterile.
2. They are inexpensive, and can be used over and over again.
3. They are easily and quickly applied.
4. They adapt themselves to the swelling of the surrounding tissues.
5. They can be conveniently carried.

The only real disadvantage connected with their use is the slight discomfort to the patient, when they are removed from the skin. It is unnecessary to apply more than four or five of the clamps in closing the skin of the average abdominal incision. They are placed at intervals of about an inch, or a little over. The slight amount of pouting that sometimes takes place between

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the clamps does not seem in any way to affect the perfect healing of the wound.

Our results in the 182 cases in which we have used the clamps are, on the whole, satisfactory, but we have not employed them as yet perhaps in a sufficient number of cases from which to draw any positive conclusions, as to the frequency with which primary union of the incision takes place following their use.

#### SUMMARY.

Total number of cases in which clamps were used.....181  
 Condition of incision not definitely noted in history ..... 37  
 Analysis based on the remaining cases.....144  
 Total incisions healed by first intention.....112 or 78%

Sixteen of these, however, showed a slight amount of serum around one or two clamps.

Incisions showing pus around one or two clamps.....17 or 12%

Incisions showing pus and serum around one or two clamps....15 or 10%

100%

Total cases showing pus or pus and serum which was sterile..12 or 8.3%

#### BACTERIOLOGY.

Total cultures taken, 29.

	Total	Pus	Pus and Serum
Sterile	12	5	7
Unidentified	2	1	1
Streptococcus	1	1	
Staphylococcus	6	3	3
Streptococcus and Staphylococcus	1		1
Colon Bacillus	7	2	5

702 Rose Bldg.

#### Retropositions of the Uterus in which Anterior Replacement is Contraindicated.

By CHARLES D. WILLIAMS, M. D., Demonstrator in Gynecology,  
 Western Reserve University, Cleveland.

Retrodisplacement of the uterus is a relatively common condition, being found in various stages and in many degrees, from what might be termed a slight retroposition to marked retroversion or retroflexion. Not all of these malpositions by any means necessarily give rise to symptoms, the patients in many instances suffering no discomfort whatsoever. In a large percentage of cases, however, a definite train of disturbances is noted. These

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may be few in number or manifold, the severity generally increasing the longer the condition remains unremedied.

We all know and have seen the advantageous results which follow the replacement of a retroposed uterus, whether the restoration and retention of position is effected by the simple bimanual replacement and the application of a suitable pessary or by one of the various operative procedures. There remains, however, a certain class of cases, in which forward replacement is contraindicated. That such instances are rare, or perhaps are oftener overlooked than diagnosed, seems to me to be proved by the scanty literature upon the subject. In most of the textbooks the condition is not even mentioned.

These retrodeviations are found only in nulliparae; at least the cases I have observed have all been in young women who have never borne any children. In no instance have I been able to demonstrate the existence of a similar condition in either a primipara or a multipara.

Upon pelvic examination in this class of patients, the uterus has never been found to occupy an extreme retroposition. The position found was that of a mild to a moderate retrodeviation or what may be described as a sagging condition, the organ being generally found about midway in the anteroposterior diameter of the true pelvic cavity and in a direct line with the intra-abdominal pressure and the axis of the vagina.

Upon vagino-abdominal palpation the cervix is very low down in the line of the axis of the vagina, markedly conical in shape, considerably elongated and with its upper or basal part apparently broadened. The supravaginal portion of the uterus seems to ride about the middle of the pelvic cavity and although it moves readily with the cervical portion there is a certain rigidity of movement of the whole uterus due to the surrounding attachments.

Although the uterine body can be readily brought forward by manipulation with the hand placed upon the abdomen assisted by the finger in the vagina, the fundus does not occupy as high a position in the pelvis in regard to the symphysis pubis as in normal cases (hysteroptosis). The body of the uterus is increased in size in both the transverse and the antero-posterior diameter. It gives one the sensation of palpating a non-pedunculated or sessile body resting on the floor of the pelvis. When the fundus

is brought forward and the hand upon the abdomen is released the uterus readily goes back into its former position.

The cervix in its elongated condition forms a long lever, so to speak, which greatly facilitates the temporary forward replacement of the uterine body, and which also tends to cause it to remain in its antero-posterior location. The long cervix, inasmuch as it is difficult or impossible for it to remain posteriorly directed across the axis of the vagina, operates to keep the fundus and body in a line with it, or the uterus, as a whole, in the line of the intra-abdominal pressure and in the vaginal axis.

The vagina is somewhat shortened, in some instances very markedly. This shortening predisposes toward a backward displacement of the uterus and in part accounts for the low position of the external os. The uterosacral ligaments upon manipulation give the impression of being thicker, better developed, more tense and resistant than normal. The cervix itself is held nearer the anterior pelvic wall, partly as a result of a poorly developed or short anterior vaginal wall and partly owing to a shortening of the uterovesical ligamentary attachments. When the fundus of the uterus is drawn forward with the abdominal hand, while at the same time the cervix is pushed backward and upward with the vaginal finger, the uterosacral ligaments remain taut and resistant. Upon being released the uterus immediately resumes its former retroposition.

*Etiology:* The explanation of these congenital retrodisplacements must be sought in the embryological development of the uterus. In the embryo in early pregnancy the uterus is generally found anteverted or anteflexed. A maldevelopment undoubtedly gives rise to the malposition.

Kustner has found that an imperfect development of the corpus uteri is generally found in an imperfectly developed fetus and that in a well developed fetus a normal anteposed corpus is the rule.

To embryonal development can be ascribed the normal position of the uterus as well as the congenital class of retro-deviations. The majority of the cases of malpositions are acquired, and I have seen no other class of retrodisplacements which could be said to be congenital in origin.



*Diagnosis:* The symptoms do not give us any definite clue as to the exact pathological condition present in the pelvis, as they are common to many cases of acquired retrodisplacement. We therefore have to resort to bimanual, vagino-abdominal, or recto-abdominal palpation to determine the precise nature of the case.

*Treatment:* First of all, it is highly important that the congenital class be differentiated from the acquired, inasmuch as the treatment, unless based upon a correct diagnosis, may be of no value or may even be detrimental to the health and comfort of the patient.

Operative measures leading to an anterior replacement of a uterus in this congenital position simply add to the number of failures without alleviating the symptoms of the patient, who fails to understand why no benefit—but only an aggravation of her former symptoms—has followed from the procedures carried out.

When one understands that an attempt has been made to correct a congenital pathological position of the uterus by the substitution of a pathological position which is more vicious and abnormal than the first, it is not difficult to comprehend the patient's feelings in the matter. It is unfortunate that these cases are seldom correctly diagnosed even at the time of the operation and that only the failure of the uterus to remain forward or an accentuation of the patient's former symptoms leads the operator to finally recognize the exact condition that has existed. Personally I do not consider it difficult to make a diagnosis but my attention was first drawn to these cases several years ago from the failure of a suspension operation.

Altogether, out of a very large series of gynecological cases of all kinds, I have observed this congenital retrodisplacement of the uterus in only seven instances. Of the patients three were single and four were married, but not one of them had borne any children or been pregnant. They were all without exception young women and otherwise apparently well developed.

There was no history to establish the preexistence or the presence of any inflammatory reaction, nor were there any evidences of such upon examination or even at the time of operation when this was carried out. In three of these seven

cases suspension of the uterus was carried out. In every case not only were the patient's symptoms not alleviated, they were markedly aggravated. In the other four cases the condition was so evident, that, profiting from the ill results in the other three, I did not recommend a replacement.

One of the above cases had been operated upon by a gynecologist in the South who had performed the suspension operation. The patient stated that her symptoms afterward were accentuated. She was told by another gynecologist whose advice she sought that the fundus had been torn away from its point of support which I was also easily able to verify by bimanual palpation.

The uterus in the second case, in which a suspension had been performed, also pulled away from its point of attachment to the parietal peritoneum a short time after the operation. During the time that the uterus remained forward the patient suffered considerable distress which she expressed as a pulling, dragging sensation at the site of the attachment of the fundus to the abdominal wall. She experienced great relief when the uterus regained its former position, although her earlier symptoms persisted.

In a third the symptoms as related are fairly characteristic of this type of displacement and I shall give them to you along with a brief history.

The patient was aged 23; height 5 feet 5 inches; weight 125 pounds; good development. She complained of a frequent, almost constant desire to urinate with cramp-like pains and a sense of smarting each time she voided. She also complained of dull, aching, bearing down pains in the lower abdomen, especially aggravated at the menstrual periods. She suffered also from backache in the lower lumbar region, generally accentuated when she was on her feet, nervousness, disturbed sleep, variable appetite and attacks of indigestion. Her menses began at 14 years, were regular, lasting seven to eight days, the flow being always excessive in amount, occasionally clots were passed. The dysmenorrhea was always severe.

The Kelly ventral suspension was performed in this case and the patient made apparently an uninterrupted recovery. After leaving the hospital her symptoms continued or were, she said, even worse than before, as in addition to frequent and painful urination she had a sense of pressure over the bladder besides a pulling, drawing sensation referred to the place at which the fundus of the uterus was attached. Her nervousness and other reflex symptoms remained unimproved.

Whether the uterus in this case pulled away from its point



of support, and to judge from the other operative cases of the series I expect it did so, or the condition subsided I do not know as the patient left the city about two months after the operation was performed. I might add that there was a depression or slight umbilication of the abdominal wound at its lower third overlying the attached fundus.

The fourth case was one which was referred to me by a physician and which I considered a very typical one. The woman presented symptoms similar to those complained of by the other patients. Upon examination the cervix was found very low in the vagina, elongated, conical in shape; the uterus was slightly enlarged occupying a position midway in the antero-posterior diameter of the pelvic cavity, freely movable but lacking a degree of mobility equal to that possessed by the average normal uterus. The organ gave one the impression of a non-pedunculated or a sessile body resting upon the floor of the pelvis. The uterosacral ligaments were well developed and the lateral structures were absolutely normal so far as their mobility, size and position were concerned. No operative procedure was advised although the patient was anxious to have relief irrespective of the means by which it might be obtained.

A suitable Smith-Hodge pessary was introduced to relieve the hysteroptosis present, which in reality causes the pain. Entire relief by this means was not anticipated at the time of the introduction of the pessary. It was tried with the object of holding the uterus upward in the pelvis. Partial relief only was obtained. Later with the patient in a genupectoral position tampons were placed in front of the cervix in the anterior fornix of the vagina. This treatment gave the patient the greatest relief, but of course it would be difficult and tedious to continue the tampon treatment indefinitely in such cases.

I might mention that the urine in these cases showed nothing abnormal chemically or microscopically to account for the bladder symptoms.

Failing, in a routine examination of many thousands of cases, to find this condition of the uterus in women who have borne children I am led to believe that pregnancy leads to a cure. At any rate by a consequent elongation of the body of the uterus with possibly a broadening and subsequent shortening of the cervical portion, the fundus is enabled to come forward more readily and consequently, when suspension or another operation subsequent to childbirth is deemed necessary and is performed, it is possible thereby to maintain the uterus in a normal forward or anterior position without that tension and liability to failure which characterizes the congenital class of cases previous to the onset of pregnancy.

I deem it best, therefore, in cases such as these to forego

all of the many operative measures devised or resorted to, in that they tend to create what might be termed an abnormal condition, inasmuch as we have to consider the other position as the normal one in this class of cases. The retroposed position of the uterus, placed, as it is, midway in the antero-posterior diameter of the true pelvic cavity is a truly congenital one and leads to fewer symptoms than when the uterus is mechanically more anteriorly placed.

Kelly (*Operative Gynecology*, Vol. 1, p. 178) in speaking of retrodisplacements in women who have never borne children says: "In these cases the retroposition is often congenital as shown by the short vagina which keeps the cervix so low in the pelvis that the fundus must of necessity fall back: Here the retroposition is natural and an anteposition would be abnormal so that all efforts to induce such a uterus to remain in anteversion will, fortunately for the patient, prove futile." With these conclusions of Dr. Kelly I am quite in accord, except that I do not believe that the low position alone of the cervix determines the position occupied by the fundus. The uterosacral and uterovesical ligaments as well play a part in maintaining the retroposition. With these factors operating to bring the uterus in line with the axis of the vagina, the cervix must occupy a lower position and may even become more and more elongated as we see it in various prolapsed conditions.

In three out of a total of seven cases which I have observed the patients had been operated upon with unsatisfactory results. In two of them the fundus pulled away from its point of attachment, with partial relief to the patients. In the third case the uterus, up to the time when the patient left the city, remained forward but the previous symptoms were aggravated and new ones added. In the remaining four cases replacement of the uterus was plainly contraindicated and was advised against.

In any case of this class of retrodisplacement it should be impressed upon the patient, or her friends or relatives, that relief or cure cannot be expected from any operative procedure carried out except from a complete hysterectomy which, of course, would be out of the question.

The cure for the condition, therefore, seems to lie in the development of a future pregnancy, inasmuch as the cases are not met with in parous women.



It is true that the elongated, low down, axially-placed cervix predisposes to sterility, but this is only a relative and not an absolute condition.

In our endeavor to relieve and cure patients suffering from retrodisplacements we must carefully eliminate these cases of congenital origin. I would say that because a patient exhibits no symptoms when the uterus is in retroposition it is not necessarily to be inferred that the displacement is a congenital one. The differential diagnosis though too seldom made, is nevertheless not difficult, the bimanual vagino-abdominal method of palpation, with or without anesthesia, being employed.

A failure to correctly diagnose these cases means not only an unnecessary operation which is to be deprecated at all times, but also entails additional suffering upon our patient who has sought relief. It is only through close observation and much experience that these cases can be eliminated and kept from the infliction of an operation which can offer neither relief nor cure.

#### SUMMARY.

1. Cases of acquired retrodisplacement often present no symptoms, but in the congenital type symptoms of the abnormality are always complained of and are due to hysteroptosis which exists. The position of the uterus when it is constantly acted upon by the intra-abdominal pressure, tending to force it more and more downward, must cause discomfort to the patient.

2. Congenital retrodisplacement is somewhat rare and is seldom diagnosed. Cases of retrodeviation, even though present from childhood, are not necessarily to be classed as congenital.

3. The condition is never found in primiparae or multiparae, only in nulliparae. Pregnancy effects a natural cure.

4. The sterility present in these cases is only a relative, not an absolute condition.

5. Operative procedures are to be condemned and should have no place in the treatment of this type of retroposition. A diagnosis is not difficult and should preclude operation. The patient's sufferings are much accentuated after operative replacement.

6. Tampons and pessaries give some temporary relief by partially correcting the hysteroptosis.

## Observations on the Technic of Radical Mastoid Operations.

By W. H. TUCKERMAN, M. D., Cleveland.

In this paper I shall not attempt to bring out any new facts regarding this operation as the field has been carefully covered in recent literature, but I shall attempt to emphasize some of the points in technic which are essential to rapid clean operating and which add to the ease of aftercare. By calling to mind the object of the operation we aid ourselves in forming a clear idea of its essentials. The objects to be gained by radical operation are: first, the removal, so far as possible, of a focus of diseased bone which, on account of its position is a constant menace to the patient's life; second, the conversion of the mastoid cavity, the antrum, the aditus, the attic, the tympanum and the external auditory canal into one large easily accessible cavity to favor complete healing; third, the conservation of as much hearing as possible; fourth, the avoidance of disfigurement as far as consistent with the primary objects. I shall take up the steps of the operation in regular order.

*Preparation of the field.* On a man the shaving of a large area around the ear, although not necessary, does not cause comment; but on a woman, her injured pride does not recover 'till long after the hair has regained its original length. This can be avoided by instructing the nurse not to shave to a distance of over one to one and a quarter inches back of the retroauricular fold and not to use scissors, also to hold the hair away from the ear while shaving and not to shave at all above and anterior to the ear. After the shaving, the hair can be braided out of the way or held by the metal side combs used in the Vienna clinic. When covered by a rubber cap there is no danger of wound infection.

*Incision.* The most common mistake in the initial incision is to make it too far back, in which case the excessive tissue of the anterior flap is a continual source of annoyance during the operation as it is difficult to hold far enough forward to give a clear view of the posterior bony ear canal and the middle ear, just where a clear view is most needed. The incision should

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commence well down on the tip of the mastoid a little forward of the middle, rapidly approach the posterior auricular fold and run parallel with it as far up as the posterior root of the zygoma. It should be made with one firm stroke of the knife down through the periosteum, which is then raised over the entire outer surface of the mastoid from the tip to the linea temporalis.

The periosteum of the entire posterior ear canal is now raised and freed from its attachment at the tympanic end. An inch bandage is then passed through the wound from behind, brought out through the external auditory canal, knotted and used as a retractor. If, now, with the retractors in place we find that the field of operation is not sufficiently exposed it is better to gain the desired room immediately by extending the initial incision upward and downward, taking care above to cut through the skin only, and not to injure the fascia over the expanded temporal muscle. Many instead of extending the primary incision use a secondary one, perpendicular to the middle of the primary, extending back over the mastoid. While this yields the desired room it leaves a nasty scar, and is very objectionable on that account.

*Opening the mastoid.* In opening the mastoid, the suprameatal triangle close to the external auditory canal is chosen for two very obvious reasons: first, because it is the least often invaded by the lateral sinus; and because it lies directly over the antrum, our most helpful landmark. The sinus is the most superficial and also the most variable of the structures we seek to avoid. It may lie anywhere in the mastoid, as far forward as the posterior wall of the external auditory canal, or so superficial as to be covered only by a thin layer of cortex, or it may lie very deep. At times it divides the mastoid cells into two groups, an anterior and posterior. It is for this reason that the initial opening of the mastoid should be carefully done until the position of the lateral sinus and the size of the mastoid cavity is determined. This is done by starting the chisel in the suprameatal triangle close to the auditory canal and running a groove parallel with the rim of the canal toward the mastoid tip. The cut should go through only the outer cortical layer. If cells are exposed then one or two cuts parallel with the first are taken to open the cells up well, and with a bent probe

the limits of the cavity are explored. The outer cortex is then removed rapidly with a chisel or rongeur to the limits of the cavity and the necrotic tissue and granulations removed with curette or a chisel, using the probe to seek out further extensions of the cells.

*The antrum.* After the mastoid is well opened the attention is turned to the antrum which lies directly under the suprameatal triangle. A good method of orientation is to pass a straight probe along the posterior superior wall of the auditory canal till stopped by the inner wall of the middle ear, and to note the distance and direction of the probe. Then by going parallel to the canal directly inward in the suprameatal space a like distance, the antrum is readily reached. If the bone is soft, a small curette easily reams out an opening into the antrum. In some cases the antrum is walled off by a layer of dense bone (caused by the chronic osteitis) so dense that often the novice is afraid that he has lost the direction. In these cases a small chisel is used. Many advise as a routine the immediate opening of the antrum before cleaning out the mastoid cells. This I think is a waste of time, except in cases in which, on opening the outer cortex, we find a sclerosed mastoid and it is necessary for proper orientation to find the antrum immediately. In other cases the removal of the main part of the mastoid cells first makes the approach to the antrum much easier. After the antrum is opened a bent probe is passed through the aditus ad antrum to make sure that we have the antrum and not an excessively large cell. Then the limits of the cavity are explored and the outer wall removed.

*The bridge.* The next step is the removal of the posterior wall of the auditory canal. This is quickly done until we get down to that portion we are wont to call "the bridge," that is that part of the posterior wall which forms the outer border of the aditus. It is in removing this bridge that we come in close relation to the facial nerve and the external semicircular canal, both of which lie on the inner wall of the aditus directly beneath the bridge. The fear of producing facial paralysis is so great that often one leaves behind bone that greatly hinders the complete healing of the wound. It is well to remember that although injury to the facial nerve is much more serious than damage of the lateral sinus, yet its constant position allows one



to work much closer to it without fear of injury. If one keeps in mind that the course of the facial downward to the styloid foramen is in a plane as deep as the aditus above and the digastric groove below, and as one seldom removes the tip as deep as the groove, he need have no fear in removing sufficient of the lower portion of the posterior canal wall to allow the comfortable placing of the plastic skin flap. The damage to the facial at the bridge generally comes from a slip of the chisel or from taking so deep a bite that the bone fractures instead of cutting. If fine cuts are taken the entire bridge can be removed, leaving no recess above toward the aditus nor anteriorly where the overhanging edge of the wall forms the natural extension backwards of the tympanum. In cases in which the isthmus of the canal is marked a removal of a part of the posterior inferior wall makes the lower portion of the tympanum more accessible.

*Final inspection of the cavity.* It generally saves time after the middle ear, aditus and antrum are well exposed if the operator packs this cavity (moistening the packing with adrenalin if there is much oozing) while he turns his attention to the careful smoothing of all rough edges of the mastoid cavity and makes a final search for overlooked cells. The most common place to find these is in the tip and the posterior root of the zygoma, extending at times well over the roof of the auditory canal. Several times I have seen a mass of diseased cells lying posterior to and below a superficially placed sinus which had been so well cut off from the body of the cells by the sinus that they almost escaped detection.

By this time the middle ear will be found dry and the white glistening surface formed by the external semicircular canal, and the facial bend may be easily made out and one can proceed carefully to curette away any recesses. being careful that the outer wall of the antrum, the aditus and attic are entirely removed. The outer wall of the anterior part of the epitympanic cavity is most often overlooked. With the curetting of the Eustachian tube the middle ear is finished. After washing out and drying the cavity the plastic work is begun.

*Skin flaps.* The character of the flap is of little moment, whether a Panse, Balance or one of the numerous modifications,

provided that the incisions extend well out into the concha and the opening is made large enough to easily admit the tip of the little finger. The cartilage is then thoroughly removed from the back of the flaps so that they can be easily placed and there is no tendency to subsequent displacement. The fear of bad cosmetic results may lead the operator into the mistake of making too small an opening. He is then compelled to do the after-treatment, which even when it runs a favorable course is always tedious, through an opening which does not allow a ready inspection of the entire cavity.

The posterior wound is closed either with a single row of interrupted sutures, taking periosteum and skin together, or by a double row. The single row seems as efficient provided care is taken not to omit the periosteum in the suture. The cavity is then packed with iodoform gauze through the auditory canal, taking care to pack laterally holding the flaps in position but not to exert any pressure on the inner wall as such pressure is liable to set up a neuritis of the facial nerve causing the additional discomfort of a temporary facial paralysis. The initial dressing is left in three or four days, as by this time it comes away easily, and dressings thereafter are made every other day, or if necessary daily.

*Sinus and dura.* So much has been written in older works on the danger from injured sinus or exposed dura that even yet these structures are regarded as much more vulnerable than experience and statistics show. Actual wounding of the sinus should be very rare if ordinary precautions are taken but if injured the bleeding is easily controlled by packing. What danger there is from injury to these structures lies in infection. One who has watched the work in a large clinic where little care is taken to avoid exposure of the dura and who has seen the apparent immunity of the dura to infection, loses the dread he previously entertained. The only precaution taken if the dura is exposed is to make the opening large enough to insure good drainage. I do not mean to advocate needless exposure of the dura, yet I should not hesitate to expose it if necessary to the performance of a complete operation.

*Hearing.* The result as to hearing is uniformly bad. Often immediately after the operative wound has healed completely the remnant of hearing may for a time show a pleasing improve-



ment, but when the patient is examined one, two or three years after the operation the hearing will be found to have rapidly deteriorated. This leads me to say a word on the conservative radical operation.

*Conservative radical operation.* This is the same as the radical operation up to the point of removing the bridge, except that probing the middle ear from the antrum is avoided, and one is careful not to curette the antrum anteriorly and downward for fear of displacing the long process of the incus. The middle ear is then irrigated through the antrum with an attic canula, and finally a blast of air is blown through the tube into the tympanum. This forces any debris in the middle ear through the perforated drum and if any polyps are present, they are removed. The perforation and the antrum are closed with a pledget of sterile cotton and the wound dressed as after a radical mastoid operation. These patients are dressed daily, the middle ear being washed through the attic and the cavity again isolated from the general cavity by pledgets of cotton. The opening to the attic is finally allowed to close and at times the perforation may be induced to close.

I had the pleasure of watching Heath of London, the staunchest advocate of this procedure, operate upon several patients, and saw both the recent and late results of the operation which were indeed gratifying. I believe that this operation ought to be performed when we are compelled to operate upon a patient's only useful ear. The operation removes the greatest danger from chronic mastoiditis—the chance of brain infection—while it allows the patient the possibility of retaining useful hearing. Heath considers coilesteatomata the only contraindication to this operation.

*Aftercare.* It is well to emphasize that painstaking aftercare is a large factor in the ultimate outcome of the radical operation, and it is wise to tell the patient prior to the operation that he must submit to considerable aftercare, else he is liable to be much disappointed with the immediate result. It always takes some time for complete epidermatization to take place.

## Coagulation of Lymph in the Semicircular Canals.

By D. A. PRENDERGAST, M. D., Cleveland.

As a practical knowledge of the different forms of nystagmus is necessary in the study of any pathological condition of the inner ear, a résumé of the more important points in nystagmus as related to the labyrinth will be made. Within the scope of this paper it will be possible to give merely the essentials of this very extensive subject. The experimental part of the work must be omitted entirely but the history of nystagmus will be alluded to briefly.

Our present understanding of the symptoms following stimulation of the vestibular apparatus no doubt began with the classical experiment of Ewald in which he proved beyond doubt that nystagmus with the concomitant symptoms were due to currents of endolymph within the semicircular canals. Before Ewald, however, Purkinje in 1825 called attention to nystagmus, vomiting and vertigo following rotation in man, and at about the same time Flourens showed that section of the semicircular canals in pigeons was followed by very similar symptoms. Other investigations of like character were made by Mach, Gotz, Crum, Brown and others. It is however the very extensive investigations of Barany and Neumann and the careful manner in which they classified nystagmus as a whole that has made it a most important factor in the diagnosis of pathological conditions in the inner ear and cranial cavity.

Clinically we recognize two forms of nystagmus, the oscillating and the rhythmic. In oscillating nystagmus the component parts are equal in intensity and excursion. Rhythmic nystagmus is composed of two components, a quick movement in one direction and a slow movement in the opposite direction. When the eyes are turned voluntarily in the direction of the quick component the nystagmus increases in intensity, but when the eyes are turned in the direction of the slow component the nystagmus becomes less or may disappear. Rhythmic nystagmus is designated by the direction of its quick component. Oscillating nystagmus is considered as purely optical in origin, being due to a lack of fixation and is of little clinical value. Rhythmic

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*Read before the Ophthalmological and Oto-Laryngological Section of the Academy of Medicine of Cleveland, March 24, 1911*



nystagmus is due to a disturbance of reflex nerve impulses that come from the vestibular apparatus, the cerebellum and region of Dieter's nucleus and are carried to the extrinsic muscles of the eye. The summation of stimuli from these areas are equal on both sides of the body and by virtue of this equality of stimulation the eyes are held in a state of muscle balance. If for any reason the total stimulation from these regions is greater on one side of the body than that of the corresponding part on the opposite side of the body, rhythmical nystagmus results. Stimulation of the labyrinth would therefore cause nystagmus and as this concerns us most, it alone will be considered more in detail. Stimulation from either labyrinth may be brought about by the bending or changing of the direction of the ampullary hairs by producing currents in the endolymph normally contained in the semicircular canals. The principal clinical methods used to stimulate the labyrinth are the turning chair, the thermic test, galvanism and the fistula test.

In the first named test the patient is placed on a revolving chair and turned ten times (Barany). Opaque glasses are put on to avoid complicating optical nystagmus. If, for example, he is turned ten times to the right, nystagmus during the act of turning would be directed to the right but on sudden stopping the nystagmus would be seen to the left. As has been stated the nystagmus is determined by the direction of its quick component but it must be remembered that the slow component is directly due to the nerve impulse from the labyrinth while the quick component is the compensatory rebound. For an explanation of the nystagmus in the turning test it will be necessary to return to the experiment of Ewald and Flourens. Ewald proved that the ampullary hairs in the horizontal canal produced the greatest stimulation when directed towards the ampulla, and that in the vertical canal the greatest stimulation was produced when the ampullary hairs were directed toward the smooth end, away from the ampulla. Flourens showed that each semicircular canal produces nystagmus in its respective plane. When more than one canal was stimulated at one time the nystagmus was the sum total of the stimuli arising from the canals stimulated.

Now with the patient in the upright position, in the turning test, the horizontal canal would be stimulated. If revolved ten

times to the right, the endolymph in the right horizontal semicircular canal, by virtue of its own inertia, would flow toward the ampulla, setting up a maximum stimulation from the right labyrinth with a resulting nystagmus to the right. The endolymph in the left semicircular canal would, for the same reason, be directed toward the smooth end, away from the ampulla and this would give rise to stimulation less than from the right side but with the same effect as regards nystagmus. When the patient was brought to a sudden stop, the endolymph in the semicircular canals of both sides, obeying physical laws, would flow in the opposite direction and the nystagmus would therefore be reversed. The length of time of the afternystagmus would determine which canal was functioning. If, for example, there was destruction of the right labyrinth the afternystagmus when the patient was turned to the right would be longer in time than when the patient was turned toward the left. When the head is held at an angle of  $90^\circ$  and the patient revolved ten times the vertical semicircular canal is stimulated and the nystagmus is rotary in character and obeys the same direction in relation to turning as when the patient is turned with the head in the upright position. The explanation is in accordance with the law of Ewald and Flourens already referred to.

Regarding the thermic test we will simply repeat the conclusions of Barany, Ruttin and Neumann.

When one ear is irrigated with water below body temperature nystagmus to the opposite side will result. When water above body temperature is used the nystagmus will be to the same side as the ear irrigated. The explanation of the nystagmus in the thermic test lies in the fact that when water above or below body temperature comes in contact with the wall of the labyrinth currents in the endolymph are set up, and nystagmus results. The thermic test is of great value in determining the functional activity of the labyrinth in almost any condition and it is found absent only in a few conditions such as atresia of the external canal, collections of cholesteatoma in the external canal. When spontaneous nystagmus exists it is sometimes very difficult to determine the results of the thermic test and it is in this class of patients that a knowledge of the functional activity of the labyrinth is most important. In these it is necessary to select the direction of the eye in which the least



nystagmus exists and then apply the thermic test and watch for any change in the movements of the eyes.

The fistula test is another method of testing the functional activity of the labyrinth. When there is a fistula in the labyrinth wall, rarefaction and compression of air in the external canal, causes movements of the endolymph and nystagmus. There is no definite relationship between the direction of the nystagmus to either compression or rarefaction, except that the nystagmus on compression is opposite to that on rarefaction.

The galvanic test is of little practical importance and only a few words will be said concerning it. From the teaching of Barany, Rutten, Frey and others it may be said that its greatest service is in determining whether the auditory nerve is still functioning when the labyrinth is found inactive to the different tests.

The case, concerning which I wish to make a few remarks, was one that came under my observation four months ago. He sought treatment for deafness in the left ear. Upon examination I found a rather rare but known condition. The patient, a man, aged 50, Hungarian, laborer, gave a negative family history.

Personal history. The patient has had a discharging left ear since childhood with marked impairment of hearing on that side. Has had occasional attacks of vertigo during the past five years, some of which have been quite severe but they have always passed off within a short time.

Present illness. About one month previous to his first visit he suffered from a slight influenzal infection, during which he had a mild attack of vertigo. He maintains, however, that the attacks of vertigo were no worse than he had experienced before. He entirely recovered from this attack of influenza except that the deafness in the left ear was somewhat aggravated and has remained the same during the past month. His equilibrium has been about normal and he has not had vertigo during the past two weeks.

The physical examination was negative except for the condition of the ears. Nose and throat negative.

In the right ear the membrane was a little retracted but the functional tests revealed nothing abnormal.

In the left ear the tympanic membrane, with the exception of Shrapnell's membrane, was entirely absent. The external canal and surface of the promontory were free from any foreign material. The tuning fork revealed absolute deafness even to very high notes. To the voice sounds through the speaking tube, after excluding the function of the opposite ear with an instrument copied after Barany's noise apparatus, a slight response was given.

Nystagmus: With the eyes in the extreme right there was

just a suggestion of nystagmus with the quick component to the right. Irrigation of the diseased ear with water above and below body temperature produced no reaction. In the turning test it was found that the afternystagmus when the patient was turned to the right was approximately one-third less than when the patient was turned to the left. Each test thus far gave evidence of a non-reacting labyrinth. The fistula test was then applied as a routine measure and with very strong compression and rarefaction a slight vertigo was produced with nystagmus to the diseased side. This result was accomplished only when very powerful compression and rarefaction was used, showing that the endolymph was capable of displacement but by a force much greater than under normal conditions. The degree of vertigo and nystagmus varied directly with the amount of force used in compression and rarefaction.

A tentative diagnosis of coagulation of lymph in the semicircular canal was made, mainly on the fact that the endolymph was not as freely movable as under normal conditions. The commonly used methods which invariably produce a displacement of endolymph in the normal labyrinth were not effective but when a stronger pressure was brought to bear upon the endolymph by means of compression and rarefaction of air in the external canal in the presence of a fistula in the labyrinth wall, a displacement of endolymph was produced as was evidenced by the nystagmus. The history and absence of any of the severe concomitant symptoms such as vertigo, vomiting and so on, which accompany any rapid destruction of the labyrinth from any acute cause, speaks for the pathological process being a slow one and it is possible that the absence of the concomitant symptoms were due to the compensation in the normal labyrinth establishing itself at the same rate as the loss of function of the diseased side.

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### Fibroid of the Nasopharynx.

By I. A. TRIPP, M. D., Cleveland.

Both innocent and malignant tumors originating in the post-nasal space and nasal passages are rare. A slow growing pedunculated tumor, called by some a fibromyxoma and by others a fibromucous polypus, may occur. It is generally attached to the posterior part of the middle turbinate bone or outer wall of the nose and is probably an ordinary nasal polypus in which fibrous tissue has become excessive owing to irritation from exposure of the growth in the nasopharynx.

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*Read before the Ophthalmological and Oto-Laryngological Section of the Academy of Medicine of Cleveland, February 24, 1911.*



The case which I am reporting was that of a strong young man, aged 28, who presented himself for an operation for adenoids. He had been treated for nearly eight months with various substances in trying to absorb the growth.

The facies showed every evidence of adenoids during youth and the right alae nasi were entirely collapsed, the left partially so. The patient said that the right side was the first to close and the left was gradually closing. A small probe could scarcely be passed through the right nostril along the floor to the posterior nares.

Examination through the mouth showed nothing until the soft palate was elevated, but after lifting this up a clear view of the growth was obtained. It was next to impossible to pass a wire through the nostril so it was decided to remove it through the mouth.

Under local anesthesia it was possible to grasp the growth with a large postnasal forceps but it could not be dislodged with these. The cold snare was then used and the growth severed in its entirety with the middle turbinate bone. The tumor measured  $2\frac{1}{2} \times 2 \times 2$  inches.

The hemorrhage was brisk for a few minutes but was checked in a reasonable time by simply packing the right nostril anteroposteriorly. The next morning the gauze was removed and the patient was sent home in four days.

The microscopical report shows that the growth is composed of fibrous tissue with very slight myxomatous change and abundantly supplied with vessels. The mucous surface is thin and smooth, no glandular elements are seen in the tumor nor is there any suggestion of malignancy. Diagnosis: fibroid. As to recurrence of such growths some authors say they recur even though the microscopical examination shows no suggestion of malignancy. The vast majority of them, however, do not recur if they are completely removed.

*433 Osborn Bldg.*

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## EDITORIAL

### The Chlorin Disinfection of Water.

Certain of the very severe epidemics of typhoid fever, like those at Plymouth, Pa., Iron Mountain, Mich., St. Clair, Mich., and elsewhere, have furnished striking proof of the water-borne character of epidemic typhoid. The opening of the new intake for the Cleveland water supply in 1904 was followed by such a decrease in the incidence and mortality of the disease that we do not need to go away from home to have the danger of polluted drinking water forced upon us. Since 1904 Cleveland has grown remarkably, as have also many other northern Ohio cities which, like Cleveland, look upon drainage into Lake Erie



as the easiest means for the disposal of human excreta. Simply because communities are in the habit of polluting a relatively large body of water we look upon the matter as being less dangerous or less unesthetic than the defecation of a single individual into a cistern.

That the removal of the intake to a point ten miles out into the lake has not solved our difficulties has been made apparent. R. G. Perkins has shown (*The Cleveland Medical Journal*, X, 1911, 81-97), quite conclusively enough, that our drinking water must be held responsible for much of our typhoid fever. Pains-taking analysis and correlation of many factors, among which may be mentioned rainfall, prevailing winds, frequency of occurrence of gas-producing bacteria in the water, the incidence of typhoid, and the localization of the primary, sporadic cases before the disease becomes epidemic, have proved the polluted character of our water supply. The conditions are such that they must go from bad enough to criminally worse, they cannot be expected to remedy themselves. Must we continue to die, in constantly increasing numbers, of typhoid fever? What are the measures, theoretical and practical, from which we may expect betterment?

The intercepting sewer, once looked upon as a solution, merely evades the question of lake pollution. Even before its completion we have been forced to realize that the amount of sewage which will continue to discharge through the Cuyahoga River will be sufficient to make our water a dangerous beverage. Real sewage disposal, as opposed to the mere emptying of sewage into the lake at a point more distant from the intake, would help. But a proper disposal plant would require years for its establishment, and there is immediate need for a remedy. It would require millions of dollars and, in the end, might not be worth its cost because it would take care only of local sewage. Ultimately all civilized communities must adopt such methods as will render sewage not only harmless but useful.

Efficient filtration would also render the water safe. But here again time and money are insurmountable obstacles. Furthermore, a filtration plant, no matter how well constructed originally, may become a thing of positive danger if improperly managed, if it is made the plaything of politics rather than the serious business of science.

There is left, then, the sterilization of the water by chemical means. Of the various methods of chemically disinfecting water the chlorin method seems to have most advantages and fewest objections. It has been successfully used elsewhere. In order that its value under local conditions might be definitely determined H. D. Haskins and R. G. Perkins have undertaken a thorough experimental investigation of the question. They have found a dosage of 0.7 part of available chlorin per 1,000,000 parts of water efficient. In lake water experimentally inoculated with *B. coli* such a dosage causes a reduction, in the experimentally very high bacterial content, of 90% within six minutes and of 100% (referring to non-sporebearing bacteria) in less than 30 minutes. The diminution in the amount of the added chlorin is as striking as the decrease in bacteria. Within a very few moments most of the chlorin is used up and in 30 minutes only an infinitesimal fraction of the original amount is still present. They have recommended bleaching powder as the most satisfactory and least expensive source of the needed chlorin. It ought not be necessary to add that only the clear supernatant solution is added to the water supply. The insoluble residue, consisting almost wholly of calcium carbonate and calcium chlorid, never enters the mains; because of its harmless nature it can readily be disposed of. If the application of the chlorin is made at the Kirtland Street pumping station a thorough mixing will be obtained without the use of special apparatus and there will be a minimum of 25 minutes before the treated water reaches the first service main. This time is sufficient, as the experiments have shown, for the maximum disinfecting effect and for the almost complete disappearance of the chlorin. Upon the basis of a daily water consumption of 75,000,000 gallons about 1500 pounds of the bleaching powder per day would be required, at an estimated daily cost for material of approximately \$20.00.

The experimental work of Haskins and Perkins has demonstrated that the chlorin method of water purification can be applied to our local water supply without any loss of time, without the necessity of any great outlay for apparatus and material, that it is exceedingly efficient and that it is not associated with any valid objections. The advantages of the method are so evident that it should be begun at the earliest possible moment.



With increasing turbidity the removal of the suspended matter by rapid filtration, a method much less costly than the slow process whose object is the removal of bacteria, may become necessary. But that is a matter for the future and should not interfere with the immediate use of a method which must prove efficient under present conditions.

Since the question of the use of chlorin as a means of water purification was first broached objections, upon the part of the laity, have arisen—partly in the form of more or less humorous efforts evolved at space rates by newspaper reporters, partly in the form of open letters to the daily press and partly in the shape of anonymous letters written to those who have had the subject under consideration. Many of these objections are ludicrous. Because the purpose of the chemical is to sterilize the water some have concluded that the principle of sterilization must have universal application. For them our slogan of "A million in 1920" must be sent to the rubbish heap, there to lie with that other one which ran "Onward, Cleveland, Onward," since the use of chlorin will not only sterilize our drinking water but will also decrease our birth-rate. Others, with somewhat more exactitude of knowledge, realizing that the chemical is to act upon the bacteria in the water, conclude that it will destroy only plant life and see therein a grave menace to lawns sprinkled with treated water. Still others fear that the sense of taste or of smell will be insulted. And, finally, those must not be forgotten who fear that the hardness of the water will be increased to such a degree that lying upon a layer of it in the bath-tub will become a painful ordeal. Physicians can help calm the anxiety of the populace if they will keep in mind one or two fundamental facts. At the dosage recommended, 0.7 part per 1,000,000 of water, one quart of water would contain 0.015 grain of added matter. This huge amount would be present only at the moment of adding the bleaching powder solution to the water. Within six minutes this quantity will have been reduced by considerably over one-half. Within 30 minutes, that is, by the time the first service main is reached, the chlorin will have been still further reduced to such an infinitesimal amount as can certainly have no effect in decreasing the birth-rate or in inhibiting the growth of grass. The content of the water in calcium carbonate and calcium chlorid,

both normal constituents of lake water, will be increased. But since the total amount of substance added is less than one part per million of water it seems safe to assume that the increase in hardness will not actually be appreciated by the most delicate skin. As to taste and odor, it will undoubtedly be found that many hyperactive imaginations will be able to detect chlorin in the water more readily than the most sensitive chemical reactions. If the newspapers were to announce tomorrow that chlorin had been added to the water thousands of Clevelanders would be absolutely convinced that they could taste and smell the chemical, even if none had been added. And that is precisely what the actual addition of bleaching powder solution amounts to, since all the chlorin will have disappeared by the time the water reaches the consumer. All the objections, real and imaginary, which can possibly be raised against the chlorin purification of our water cannot stand for a single moment against the efficiency, the immediate availability and the low cost of the method as determined by experimental investigation.

O. T. S.

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### Tumor.

What is a tumor? Literally a tumor is a swelling. But such a definition is no more illuminating than a more literal definition that a tumor is a tumor or a swelling is a swelling. Obviously such a definition is of little value and, for this reason, some writers have despaired of retaining the term "tumor" to mean a neoplasm that subserves no useful purpose to its host, and have preferred to introduce in its stead such terms as blastoma, teratoma and teratoblastoma.

Many of our most fixed scientific terms have suffered for more distortion and antiquity of meaning, during the irregular advance of our knowledge of the disease conditions to which the terms were applied. This "struma" is used by the Germans as a synonym for goiter or bronchocele, although on the grounds of priority it should be a synonym for "scrofula" and its adjective "strumous" still is a commonly used synonym for "scrofulous." The term "tumor" is being applied to a much narrower group of neoplasms from year to year as the result of our advancing knowledge of tissue overgrowth and the proper stage in the evolu-



tion of our knowledge of these new growths has not yet arrived when we can replace the word "tumor" with another term without merely juggling words and perpetuating the same indefiniteness that now attaches to this term.

Whether the word has outlived its usefulness or not is a question for the future and we of this generation may more profitably concern ourselves with the accumulation of data—anatomical, physiological, pathological and general biological—appertaining to new tissue growths, so that when the time arrives for a Pasteur of tumors he may find much of the raw material in place, even though our efforts at assembling it are crude.

This is exactly what has been going on during the last decade of the new era of tumor study. Of the many angles from which the tumor problem has been approached, that of morphology has long held a dominant position and just as it had seemingly drifted into the eddy of superannuated research, a new field of usefulness and significance has been given it by the recent work of Howard and Schultz. (*Studies in the Biology of Tumor Cells* by W. T. Howard and O. T. Schultz. Monograph No. 2 of the Rockefeller Institute for Medical Research, New York. Feb. 15, 1911), in applying the data of experimental cytology to the activities manifested by tumor cells.

These authors have made careful studies in the cytology of tumor cells in the light of the work of experimental biology and have given us the views that tumor cells biologically follow very closely the series of morphological changes, and probably physiological as well, which are manifested by the non-tumor cell in its struggle for existence under such untoward conditions as starvation, overfeeding, increased activity and rapidly repeated division.

But while the tumor cell, in general, follows the general biological cycle of the non-tumor cell it suffers certain physiological modifications and departures that specifically characterize the tumor cell: thus, functional activity to which a good share of the normal cell's energy is directed is, in the case of the tumor cell, diverted or abnormally distributed to the advantage of cell growth.

Another modification of great importance which the authors have carefully studied and which they point out is practically a necessary accompaniment of rapid growth, is the development

and utilization of regulatory processes. The regulatory mechanisms commonly employed by cells are growth of cytoplasm with differentiation and functional activity, cell division, nuclear resorption and chromidiosis, dissolution and extrusion of nuclei, renewal of chromatin during rest, conjugation and lastly "nuclear budding," which was hitherto undescribed.

It is due to the summoning of these regulatory mechanisms to this aid so to speak, that the tumor cell is enabled to stave off depression and death and continue its seemingly unlimited proliferative capacity, which is so characteristic of the malignant tumor cell. For such ideas as these we are indebted to the experimental cytologist, and there is reason to believe that the data of tumors will be further enriched from this relatively new and important field of research.

But through other avenues of research our knowledge of tumors is also advancing. In a recent contribution by Reytou Rous (*Jour. Exp. Med.*, 1911, XIII, p. 397) this observer has been able to "transfer" a fowl sarcoma from one fowl to another of the same stock by means of the cell-free juice expressed from the tumor tissue. This finding, if established beyond question by subsequent work, entails a somewhat radical change in our ideas of tumor transmission. The inability thus far to establish any bacterial or protozoan virus to explain tumor metastases and tumor inoculability has led students of cancer to the belief that the tumor cell was the parasite. Nevertheless the study of transplantable tumors and of tumor transplantation has, through the establishment of the fact that tumor transmission is so strikingly dependent upon the character and condition of the host, modified to some extent the current theories of tumor origin and has prepared us to consider something more or less than the intact cell body as an agent in tumor transmission. While the old view of an ultramicroscopic organism must be reckoned with in further tracing out the significance of this unusual finding, nevertheless, as the author states, another sort of agent must also be considered, viz., one partaking of the nature of a chemical stimulant or activator elaborated by the tumor cell but capable under certain conditions of exciting normal cells to abnormal growth. If this later possibility should prevail the study of these certain conditions would doubtless become the important problem and their solution would carry us far into the etiology of tumors. D. M.



### Shock.

Our industries and rapid transit annually claims thousands of victims. A large percentage of these come to their end through shock. Thanks to our knowledge of this interesting problem, we can now save the largest proportion of these badly hurt men. In this condition we have to deal with a central nervous system lesion, caused by the continuous, injurious, centripetal nerve impulses arising at the site of trauma. The process is a vicious circle, i. e., the exhausting damage to the brain as a whole causes a relaxation of the great abdominal vessels with a consequent fall in general blood pressure. The already damaged cells then receive a progressively lessening amount of nourishment through the blood stream, until death slowly intervenes. If the trauma is not severe enough to prolong and to add to the condition, or if we interrupt the circle early enough, the patient will recover.

The principles in the cure are three: 1. Increase the supply of nourishment to the brain, by raising the general blood pressure, either through the head down posture, or by bandaging the lower half of the body over heavy cotton pads, or by intravenous saline-adrenalin infusion. When these procedures fail, as they will in the severe cases, then we must use blood transfusion, a true specific in this condition. 2. Block with novocain the nerve trunks that supply sensation to the traumatized area. 3. Rest, the physiological cure of the worn out cell. This is best induced by a generous dose of morphin.

The time and method of operating on the mangled extremities, as well as the kind of anesthetic, are all-important factors in the ultimate outcome. Ether anesthesia is ten times more harmful to these patients than nitrous oxid. Under the latter, shock does not progress as under ether, probably because the body tissues, under its influence, are not able to use oxygen properly. Best results will be obtained by using nitrous oxid anesthesia and by blocking all nerve structures locally before cutting. Lumbar anesthesia has these drawbacks: the head must be elevated and the vasomotors below the puncture will be paralyzed. These factors quickly lower blood pressure. The employment of these principles in the treatment of shock lowers the death rate as much proportionately as does Flexner's serum in epidemic meningitis.

H. G. S.

### Governor Harmon's Interest in Medical Matters.

The medical profession of Ohio unquestionably owe a debt of gratitude to Governor Harmon for the active interest he has taken in matters pertaining to the medical side of our State hospitals and other eleemosynary institutions which come under his official jurisdiction.

Two years ago he expressed a desire to have an experienced physician on the Board of State Charities, of which he is president, and which has supervision of all Ohio public institutions. Not long ago he appointed one.

In 1910 the Committee on State Institutions of the Ohio State Medical Association obtained an audience with the Governor for the purpose of urging the appointment of more physicians on the Boards of Trustees of our various hospitals for the insane. He considered the proposition advisable but suggested that the matter be held in abeyance, for the time being, as a bill had been introduced in the Legislature eliminating all Boards of Trustees and providing for the appointment of a "Central Board of Control," to take over the management of practically all the State institutions. This board was to consist of four members who would devote their entire time to this service and their compensation was to amount to \$5,000 per annum with traveling expenses. This bill finally became a law and goes into effect, August, 1911.

Directly following the Cleveland meeting of the Ohio State Medical Association the Committee again consulted the Governor in reference to the practicability of appointing an experienced medical man on the new board and the assurance was given that this had been arranged for and one had been selected. Recently the appointment of Dr. Arthur F. Sheppard, for several years Superintendent of the Dayton State Hospital, was announced.

Governor Harmon has indeed done his part in seeing to it that the thousands of dependents in this great Commonwealth are being properly cared for in health matters and in this respect he deserves our united support and cooperation.

H. H. D.



## Department of Therapeutics.

Conducted by J. B. McGEE, M. D.

**The Pneumococcus:** Wm. Hanna Thompson, in the *Medical Record* for April 1, treats of the vagaries of the pneumococcus. It is useless to ask why the pneumococcus sometimes attacks the throat exclusively, and shows no sign of developing in the lungs. All we know is that it behaves very differently according to where and in what tissue it develops. Another important factor is that something which we call virulence, or power to poison, and which is frequently characterized by great variability in degree. One year a given epidemic is very severe in its incidence, and in the number of its accompanying complications; another year an epidemic of the same disease is much milder in both these respects. Some toxic strains, and among them the pneumococcus, lose much of their virulence if they are much exposed to fresh air. The pneumococcus also is very sensitive to carbolic acid, and in both these respects we seem to have valuable hints for practice. While specific vaccine therapy has not yet proved generally successful against pneumonia, he believes that success may yet come from its use. But while waiting for such specific measures we can do much by symptomatic treatment. One great indication is to supply the patient with all the fresh air possible, and another indication is to avoid, as far as can be, all bodily movement. He does not allow a pneumonia patient to sit up for examination. He has often seen the lips become blue on merely turning the body from one side to the other, and when this has to be done, it should be done as gently as possible. The best stimulant for heart failure in pneumonia, as well as in other conditions, he believes to be camphor given hypodermically in half gram ( $7\frac{1}{2}$  grains) doses, dissolved in a syringeful of sterilized olive or sweet almond oil, and repeated in two hours if necessary. Strychnin he thinks much inferior to camphor for this purpose. After an experience of half a century and after trying a great variety of remedies he came to the belief that it did not make much difference what we used or did not use, but in the past decade he has changed his mind.

In this time he has had a greater percentage of recoveries due, he believes, to the use of one drug, the creosote carbonate which changes the course of the fever so that in 70% of the cases it ends by lysis instead of by crisis. He gives it in 15 grain doses every two or three hours in emulsion form. The extreme susceptibility of the pneumococcus to the faintest trace of carbolic acid, indicates that this preparation may be regarded as a true blood germicide.

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**Delirium Tremens:** S. Walter Ranson and G. D. Scott, in the *American Journal of the Medical Sciences*, consider the result of treatment in over 1100 cases of delirium tremens. Notwithstanding the considerable discussion which the subject has received, the treatment of delirium tremens is very unsatisfactory, and there is little agreement among the various writers as to the best method of procedure. Some advise hypnotics in large doses; others regard them as dangerous in even the smallest quantities, believing that they never shorten the delirium and often unfavorably influence an already weakened heart. Whether whisky should be used is a mooted question, as is also the use of digitalis and other stimulants. As to hypnotics, there is no uniformity of opinion as to whether hypnotics have any influence in cutting short an attack of delirium tremens. The enormous doses usually employed are often without effect, or if a short sleep is produced the patient awakens from it with unabated delirium. When the disease has run its course, the patient falls into a profound sleep from which he awakens more or less himself. That this critical sleep can be produced

by hypnotics is very doubtful, and those usually used have proved so dangerous that in many quarters the use of all these drugs has been abandoned. When they act it is on the incipient cases that they do so most effectively. Chloral is the drug usually given the preference, while the bromids are apparently considered both less dangerous and less effective. In their experience with hyoscin, it proved to be very dangerous, and they feel justified in saying that neither morphin nor hyoscin should be used in the treatment of the disease, but of the two, hyoscin is undoubtedly the worse. The only hypnotic that did not increase the mortality was veronal. Ergot, they found to decrease the mortality 15.0% and it is equally beneficial in the incipient cases, since only 19.2% of the cases receiving it developed delirium as compared with 46.9% among those not getting it. These results were obtained by the administration of ergot by mouth, the usual dose being one dram of the fluid extract, repeated every four hours, showing that when given in frequently repeated doses by mouth, enough is absorbed to produce definite results. No cases of ergotism have come to their notice from this treatment, and Lambert has not observed any at the Bellevue Hospital. In conclusion they state that medicinal treatment of delirium tremens is much more effective in the first than in the second stage of the disease. Their results rather indicate that incipient cases should receive large doses of the hypnotics, of which veronal is by far the best; whisky should be given regularly and ergot administered at frequent intervals, either by intramuscular injection or by mouth. Such medication should be discontinued gradually and only after all signs of restlessness, and tremor have disappeared. The delirious patient should receive veronal in moderate doses—all other hypnotics and especially morphin and hyoscin should be withheld. Ergot should be given as in the incipient cases. So far as the delirious patients are concerned, their data do not give conclusive evidence whether or not whisky should be regularly employed.

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**Anaphylaxis:** The April number of the *Therapeutic Gazette* calls attention to anaphylaxis, the exceedingly rare but nevertheless dangerous sequence of the administration of antitoxic serum for the treatment of the various infectious diseases which can be adequately combated by this therapeutic measure. It will be recalled that the symptoms are chiefly respiratory and that in some instances death has ensued with startling suddenness, the patient's lungs seeming to be filled with râles, the breathing being labored and intense cyanosis developing while in other instances equally intense pallor characterized the onset of the symptoms. Attention is called to the number of investigations which seem to indicate that atropin, if it does not actually relieve the symptoms, will at least ameliorate them. Although in the very acute cases, it is probable that no drug has the opportunity to do good, nevertheless in the cases which do not reach a fatal termination within a few minutes, atropin seems to be one of the remedies to be relied on. Auer, in various experiments in rabbits, found in this condition at autopsy such changes as led him to believe that the primary underlying cause of anaphylactic death in rabbits lies in the heart itself. For this reason it may be well to combine with the atropin an intramuscular or intravenous injection of digitalis. While both of these drugs may fail, our present knowledge would seem to indicate that they offer better results than any other line of treatment.

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**Epilepsy:** James G. Kiernan in the *American Journal of Clinical Medicine* for May believes that in epilepsy, diagnosis of recovery is as important as diagnosis of the disorder itself. The vascular phenomena which so frequently accompany an epileptic attack are not absolutely



essential factors of epilepsy. Sudden anemia of the higher nerve centers may produce convulsions, but it does not follow from this action that arterial spasm is the necessary cause of the epileptic fit. The great elements in epilepsy are the cerebral irritability and excitability and the autotoxic state. Elimination is checked, hence toxic material excitant to the great convulsive centers accumulates in the circulation. Before this accumulation there is generally strain on the oxidizing organs or on the eliminative organs taking the line of least resistance. Under normal circumstances the toxic elements produced in the organism are eliminated by various channels. In epileptics, the liver like the nervous system suffers from the general instability. It has extra work to perform but not sufficient balance to do its ordinary work. Through this the toxic products of oxidizing organs are thrown back on them. Epileptic instability is essentially the lack of balance of the degenerate or hereditary defective, plus not rarely a higher ethical and intellectual background. The nerve centers of the epileptic are therefore a powder magazine to which imperfect oxidation and elimination apply a torch. The type of the result and explosion is determined by the nerve lines of least resistance.

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**Nephritis:** In the May number of the *Archives of Internal Medicine*, Karl M. Vogel considers the chlorid and water tolerance in nephritis. It is chiefly in nephritis that resort to a salt-poor diet has been found useful, and it is becoming evident that while the therapeutic results are not invariably so brilliant as Widal predicted, investigation of the chlorid tolerance can furnish valuable diagnostic and prognostic indications. According to Widal, two clinical types of nephritis may be recognised, one in which nitrogen retention predominates, and another in which the permeability of the kidney for sodium chlorid has become impaired. Edema, he contends, depends solely on the retention of chlorids, and is largely a physical phenomenon, dominated by the body's intolerance of non-isotonic solutions. In general, the theoretic considerations of Widal have received abundant clinical confirmation, but unfortunately experience shows that the problem of nephritic edema cannot be reduced to quite such simple terms, and instances are not infrequent in which the condition proves refractory even to persistent reduction of the salt intake. Experimental studies have shown that it is necessary to distinguish clearly between the effects of tubular and vascular lesions. Injury to the tubular epithelium invariably caused great reduction in the capacity for the excretion of sodium chlorid, the retention being directly proportional to the intensity of the lesion. Vascular changes, on the other hand, were without influence on the elimination of the salt and it was found that a low specific gravity urine might be the result of over-irritability of the renal vessels, and in this case was not accompanied by any impairment of chlorid excretion; or it might be due to tubular lesions, and then involved chlorid retention which might reach the highest grades. Clinically there are, of course many transitions between the two types, according as the tubular or vascular lesion predominates, but some insight into the underlying conditions may certainly be gained by watching the sodium chlorid excretion, and particularly the manner in which known amounts of salt added to the diet are disposed of. At the same time the manner in which the kidney deals with known amounts of sodium chlorid and water furnishes, at least in some measure, an index of its functional capacity in general, and aids in establishing the anatomical diagnosis. It is, therefore, apparent that whatever may be thought of the salt-poor diet as a routine mode of treatment, the indications to be gained from a study of the chlorid and water intake and output are sufficiently valuable to render it advisable to make such determination in beginning the treatment of every case of nephritis that is at all severe.

**Gelsemium:** In *Therapeutic Medicine* for April, Geo. L. Servoss treats of the uses of gelsemium. It is a drug which was formerly much in vogue, but through inequality of action became unpopular and was practically dropped. It contains two alkaloids, gelsemin and gelseminin, the first having an effect similar to that of strychnin; while gelseminin rather resembles conium, or its alkaloid cicutin. The fact that these principals are diametrically opposed to each other has doubtless had much to do with the inequality of action of the preparations from the entire plant. Gelsemium meets many indications in a very satisfactory manner, providing the form employed is properly active. As its special action is due to the gelseminin content of the drug it is rational that the alkaloid should be employed in preference to any other product of the plant. In many painful conditions, particularly facial neuralgias and the neuralgias due to central engorgement, gelseminin has been found preferable to morphin or other opium products, and has been employed hypodermically as a substitute for morphin. Shoemaker suggests its use in lumbago. The dose of gelseminin is 1/250 grain every 15 minutes to effect in acute conditions, and every two hours in those of a chronic nature. As we now have a reliable gelseminin the physiologic effects of the entire drug should be remembered at all times, and at the appearance of any signs of effect, the interval between doses should be lengthened, or in some cases the drug withdrawn. It should be remembered that gelseminin is a very powerful agent, and that comparatively small doses, if given for any considerable length of time, have produced undesirable results.

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**Intestinal Toxemia:** In *Merck's Archives* for April (via *Medical Times*) attention is called to the fact that intestinal toxemia is perhaps one of the most frequent conditions found in children under three years of age. By the term intestinal toxemia, is meant a condition in which toxic symptoms are due to absorption of poisonous materials from the intestines. The symptoms arising from it are at times very alarming, and simulate in one phase or another almost all the diseases of children. They vary from a slight rise of temperature with moderate prostration to a very high temperature with convulsions. The diagnosis of the condition has to be made mainly by exclusion, and it is not always possible to do so on the first visit. In some cases, if we question closely, an indiscretion of diet will account for the condition, the temperature will often keep up for four or five days, and is very often puzzling. As to treatment the first indication is to administer a brisk cathartic, but one that will not irritate the intestines. Castor oil or citrate of magnesia are about the best and safest to use. It is often advisable to give a mild cathartic every day until the temperature falls to normal. The regulation of the diet is most important. The drugs of greatest value are salol and a mixture of rhubarb and soda.

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**Pneumonia:** Edward E. Cornwall in the *New York Medical Journal* in considering the heart in pneumonia concludes that: the specific toxin of pneumonia does not seem to be regularly a serious disturber of the heart in the sense that the toxins of diphtheria and influenza are such. Sometimes severe toxemia, which appears to be a pneumococcus septicemia, is observed in pneumonia, and seriously or fatally poisons the cardiac apparatus or paralyzes the vasomotor center. A constant and, on the whole, most important cause of heart disturbance in pneumonia seems to be mechanical obstruction in the lesser circulation caused by the pulmonary consolidation. The prevention of toxic complications is best effected, pending further developments in serum and vaccine therapy, by maintaining the bodily functions in as high a state of efficiency as possible particularly the function of the kidneys.



From the therapeutic viewpoint a case of pneumonia appears essentially a heart case, in which the problem is to support the heart until the obstruction in pulmonary circulation has been relieved. Direct stimulation of the heart, therefore, should not be delayed too long in pneumonia; the amount of stimulation should be regulated not only by the requirements of the circulation, but also by the capacity of the heart to respond, and the dangers from overstimulation should be kept in mind.

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**Standardization:** Chas. C. Haskell in the *Indianapolis Medical Journal* For May writes concerning the physiological standardization of ergot and digitalis. Our definite knowledge of the chemistry of ergot is if anything more scanty than that of digitalis. He states that: (1) Preparations of digitalis and ergot vary in strength. (2) There is no reliable chemical assay of these two drugs. (3) No satisfactory substitutes have yet been proposed for digitalis and ergot. He draws attention to the handicap under which the clinician labors in using preparations of uncertain strength. At present there is the greatest confusion regarding the standardization of digitalis. In Cushny's frog heart method we have a means of standardizing digitalis preparations, that is comparable to the tests employed by the chemist. With ergot the state of affairs is not so good. In conclusion he emphasizes the fact that only clinical experimentation can prove the value of and method of drug assay. It is indeed unfortunate that closer cooperation does not now exist between the clinician and the experimental pharmacologist, for the practitioner too seldom has the training, the inclination, or the leisure to indulge in time-consuming laboratory experimentation, while the laboratory worker rarely has the opportunity to observe the action of drugs on sick human beings.

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## Academy of Medicine of Cleveland.

### ACADEMY MEETING.

The eighty-third meeting was held at the Cleveland Medical Library, Friday, April 21, 1911, the President, W. B. Laffer, in the chair.

H. J. Gerstenberger presented a case of extrophy of the bladder in an infant.

H. B. Ormsby showed a case of aneurism of the aorta. The patient, a man aged 51, presented a pulsating tumor, as large as a coconut, in the left scapular region. A radiograph showed that three ribs had been eroded by it. The patient gave no history of lues and the blood pressure was not high. A few years previously he had a spontaneous fracture of the femur, and later had apparently a thrombosis of the femoral artery which caused but moderate disability for a short time.

C. F. Hoover pointed out that embolism of the common iliac might occur and yet there might be no alteration of temperature or sensation of the limb and no impairment of the muscles. He referred to three such cases of embolism of the common iliac in which no pulsation could be felt in the femoral and yet very few local symptoms were produced. Autopsy in two of these cases confirmed the diagnosis of embolism. He believed that the aneurism in the case shown was due to lues, the spontaneous fracture was probably due to gumma of the bone which, as was occasionally the case, had caused no pain.

R. K. Updegraff raised the point as to whether the possibility of a pulsating sarcoma had been excluded since the heart seemed to be neither displaced nor enlarged and the pulsation did not seem to be through and through. The previous fracture might possibly have been due to sarcoma.

H. B. Ormsby replied that previously the pulsation had been very

evidently expansile and the radiograph showed conclusively that the tumor was an aneurism.

The program was as follows:

1. Von Mosetig's Paste for Replacing Destroyed Bone Tissue, M. E. Blahd. (To appear in full in the Journal.)

J. E. Tuckerman asked if iodoform poisoning did not occasionally result from the use of this paste. He had seen one instance in which the wound had to be opened to allow a more rapid discharge of the paste.

C. D. Williams said that Mosetig in resecting joints used splints that were not rigid: he began passive motion in about two weeks and in practically all such cases, except in those of the shoulder, he obtained movable joints. The paste seemed particularly useful in tuberculosis cases as the vascularity of the tissues in these was impaired and in addition to its antiseptic effect the iodoform caused stimulation and increased blood supply. In chronic sinuses the use of this paste as a preliminary measure converted the sinus into a simple one and allowed its early closure.

W. G. Stern emphasized the necessity of removing the diseased bone widely. Autogenous vaccines were very useful if given immediately following the use of the paste. The paste gave far superior results to any of the older methods of treatment.

M. Bernstein asked if the paste had been employed in the case of ununited fractures.

M. Blahd, in conclusion, said that iodoform poisoning was almost unknown as the absorption was very slow, requiring from six to twelve months before it completely disappeared. Mosetig had reported 400 cases without symptoms of iodoform poisoning. It was not always possible to obtain movable joints after resection although it could often be done. He did not see how the paste could be used for ununited fractures.

2. Peritoneal Effusions in Typhoid Fever and Similar Conditions: Method of Demonstrating Small Quantities of Effusion, A. McPhedran, Toronto, Canada. (Appearing in full on page 501.)

C. F. Hoover said that the recognition of fluid in the abdominal cavity was often of very great importance. He had not noted the association of peritoneal effusion with typhoid except in cases of perforation. To detect fluid in the abdomen he depended more upon the sensation of resistance under the hand applied to the abdominal wall. The difference from normal was like that of a water mattress as compared to an air mattress, it was difficult to describe but could be readily appreciated. The method described by the speaker would seem to be very useful but it seemed to him a possible source of error might be an excess of fat in the abdominal wall, especially if testing over a small area.

J. H. Lowman asked whether fluid in the colon, as after a large enema, might not give the impression of fluid in the peritoneal cavity. He had not observed fluid in the abdomen in typhoid except in cases with perforation.

F. C. Herrick asked whether organisms had been found in the fluid in these cases. The peritoneal fluid in hepatic cirrhosis was ascribed by some to a mild infection of the peritoneum.

L. W. Ladd asked whether these cases had been clinically severe or mild in type and whether any conclusion as to the severity of the disease could be reached from the occurrence of peritoneal effusion. He had looked up the statistics as to pleuritic exudate in typhoid and in the Lakeside Hospital records he found that in the majority of fatal cases at least 300 c.c. of clear, straw colored, pleuritic fluid was found at autopsy.

C. E. Briggs said he had found fluid in the abdomen in nearly all of a large number of cases of complete or impending typhoid perforation. In a few cases that had been operated upon for supposed typhoid per-



foration, and in which none was found, he had noted a small amount of peritoneal fluid, hardly enough to be demonstrable by the ordinary methods of examination. In a number of cases of impending perforation, operated upon, the fluid showed typhoid organisms. In others taken very early or with a mistaken diagnosis no organisms were found.

A. McPhedran, in concluding, said that the bulging out of the flank, which was more rounded and elastic than normal was very characteristic of fluid in the peritoneum. He had excluded the possibility of fluid in the colon simulating peritoneal exudate by giving enemata and testing before and afterward, also by giving cathartics. He had not noted that these patients with effusion were any sicker than others. No doubt in many conditions there might be well marked collections of fluid in any of the serous cavities and yet no dangerous symptoms result. In the cases he had reported cultures had not been taken, the fluid was, however, no doubt infected from the perforation.

### THE OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION.

The fifty-third regular meeting was held at the Cleveland Medical Library, Friday, April 28, 1911, S. H. Large in the chair.

The program was as follows:

1. Presentation of a Case of Bullet Wound in the Occipital Region followed by Blindness in both Eyes, A. M. Cheetham.

The only symptom at first in this case was blindness in both eyes. Later there was partial recovery of vision in one eye. An x-ray plate, which located the bullet in the posterior part of the brain, was shown. The man was well enough physically, but showed evidence of mental derangement. He could not be induced to present himself for further examination.

2. Observations on Certain Forms of Choroiditis, C. C. Stuart.

The speaker stated that we were getting away from the idea that all forms of choroiditis were due to syphilis, and that auto-intoxication and tuberculosis were probably the causative factor in many cases.

H. G. Sherman reported a case which had recurrences following three different operations.

W. C. Tuckerman stated that because a patient showed a tuberculin reaction or a Wassermann reaction it did not prove that the existing trouble was caused by tuberculosis or syphilis.

3. Demonstration of Schiotz's Tonometer, W. E. Bruner.

The great advantage of this instrument lay in the fact that it did away with the personal element in estimating normal tension, and that it recorded many intervening points of tension which could not in any other way be recorded, and in terms which were standard for different workers.

4. Report of Two Cases of Removal of Steel from the Vitreous, Webb P. Chamberlain. (To appear in full in the Journal.)

H. G. Sherman, in the discussion, reported two cases in which he had successfully removed pieces of steel from the anterior part of the eye, with practically a normal eye resulting.

W. E. Bruner stated that he did not agree with the statement that had been made as to the splendid results one could expect after the successful removal of fragments of steel from the eye. He quoted Bull of New York, who, in a paper read in Washington, took a pessimistic view of the end results after steel had been successfully removed, since the eye often went on to degeneration with absolute loss of sight.

C. F. Nelson reported a recent case in which he had had no difficulty in removing a piece of steel from the eye, but a low grade inflammation followed and resulted in a blind eye.

J. E. Cogan reported some experiences he had in such cases. In one of these the steel was successfully removed, but iridocyclitis developed and blindness ensued. When the eye was later removed the whole interior of the vitreous cavity was found to be filled with a thin watery exudate and the membranes were thickened. There was no evidence of a suppurative process due to infection from the steel, but a degenerative iridocyclitis which made it dangerous to leave the eye in, as just such an eye was apt to produce sympathetic inflammation in the other.

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### CLINICAL AND PATHOLOGICAL SECTION.

The seventy-eighth regular meeting was held at the Cleveland Medical Library, Friday, May 5, 1911, R. K. Updegraff in the chair.

D. S. Hanson showed a child aged one month who had been operated upon 15 hours after birth on account of a lack of development of the tissues of the abdominal wall around the umbilicus. This defect was covered by a thin membrane of the same structure as the cord and without vascularity; it was also adherent to the liver. Within 15 hours after birth this membrane began to slough and a line of demarcation developed, necessitating an immediate operation. The child recovered and showed very satisfactory results.

W. G. Stern presented a boy who had been shown at the February meeting and who had had an ununited fracture of the elbow with necrosis of the bone. After curetting the sinus an iodoform bone plug was employed with excellent results. A wrist drop which existed at the time of operation was thought to be due to an injury of the nerve, but although the nerve was searched for, it could not be found. To correct this wrist drop, hyperextension on a splint was employed and a perfect return of function had resulted.

S. H. Large showed a carcinoma of the larynx which had been removed under local cocain anesthesia. The patient had had a previous operation and this one was merely palliative.

W. E. Hart of Elyria, showed an appendix which had been removed for acute appendicitis in a child aged five.

The program was as follows:

1. Report of a Case of Supposed Tumor of the Mediastinum, R. K. Updegraff.

This case showed marked dullness extending well to the right of and two inches to the left of the sternum and there was also marked resistance on percussion. The heart was not dislocated or enlarged and tubular breath sounds could be heard over the supposed tumor. A radiograph showed a definite shadow in the affected area. There was some dyspnea. Death occurred within three days and autopsy revealed nothing abnormal in the mediastinum to account for the definite physical signs.

M. J. Lichty, W. B. Laffer, D. S. Hanson and S. S. Fox discussed the case.

2. Report of a case of Probable Abscess of the Larynx with Aspiration Pneumonia, J. J. Thomas. (To appear in full in the Journal.)

A. A. Storey asked whether the possibility of an abscess of the lingual tonsil had been considered.

F. C. Herrick suggested that possibly it was a thyroglossal cyst.

J. J. Thomas replied that any involvement of the lingual tonsil was excluded at the examination and there was no obstruction above the larynx.

3. Report of a Case of Stone in the Bladder, R. H. Birge.



The stone, which measured  $1\frac{1}{2}$  inches in diameter, showed in the center a piece of chewing gum about 1-3 inch in diameter. The patient said that in April, 1910, while he was drunk, some of his companions inserted a piece of gum into his urethra. When he became sober he noticed a hemorrhage from the urethra and had considerable pain in the penis and bladder. Hematuria continued for about two weeks and then ceased on the passage of a piece of gum. Symptoms of cystitis continued, however, in spite of almost constant treatment for a year. Three months after the accident an x-ray showed no stone, and a cystoscopic examination, done by another physician three months after this, showed nothing. A cystoscopic examination after one year showed very plainly a large stone. This was removed by a suprapubic cystotomy which was followed by complete disappearance of all symptoms.

W. E. Lower said he had removed from the bladder a piece of gum which was colored blue from the methylene blue which the patient was taking. He had also removed from the bladder of a woman a stone, of which the nucleus was a hairpin, and in another case he had removed from the bladder a piece of paint brush handle.

G. E. Follansbee had seen a case of cystitis due to a piece of gum which had been introduced into the bladder and which was subsequently washed out in three pieces.

4. A Peculiar Winter Eruption, Dermatitis Hiemalis: Etiology, Symptoms, Treatment and Pathology; W. T. Corlett and H. N. Cole. (To appear in full in the Journal.)

W. I. LeFevre had seen a number of such cases and had had very good results in treating them with the x-ray, the lesions usually fading away under its influence. They recurred, however, in the vicinity of the areas originally involved. He considered the condition an eczema of unknown origin.

J. J. Thomas asked whether any history of infantile eczema could be obtained in these cases.

P. A. Jacobs suggested that the coagulation time of the blood be determined in these cases, since an unusual amount of lymphatic exudate in the skin suggested a diminished coagulability of the blood.

W. T. Corlett, in conclusion, said that he had used the x-ray on these patients but the effect did not seem to be sufficiently beneficial and he had found other methods preferable.

5. Surgical Indications for Treatment in Chronic Gastric Ulcer, F. C. Herrick. (To appear in full in the Journal).

6. An Interesting Case of Major Hysteria Successfully Treated by Reeducation, H. H. Drysdale. (To appear in full in the Journal).

7. Retroposition of the Uterus in which Anterior Replacement is Contraindicated, C. D. Williams. (Appearing in full on page 519).

8. Some Personal Opinions on Gonorrhea, Frank Oakley. (To appear in full in the Journal).

#### ACADEMY MEETING.

The eighty-fourth regular meeting was held at the Cleveland Medical Library, Friday, May 19, 1911, W. B. Laffer in the chair.

E. O. Houck presented a fetus prematurely born at the sixth month and showing epignathus. The tumor, attached by a long pedicle to the base of the sphenoid, projected from the mouth and showed tissue resembling amniotic structures and brain. The fetus lived for ten minutes after birth. There was nothing in the history or in the physical condition of the parents to account for the anomaly.

F. C. Waite, in the discussion referred to some of the theories concerning the cause of such monstrosities.

W. B. Chamberlin referred to a similar condition that he had recently seen and had reported at one of the Section meetings. (p. 488, May issue).

The program was as follows:

1. Tuberculin—Its Use and Administration, E. R. Brooks. (To appear in full in the Journal).

W. G. Stern, in the discussion, said he endorsed all the statements made in the paper. He had used tuberculin quite extensively and had read two papers upon this subject before the Academy. He thought the dose should be very cautiously increased, especially in using the more concentrated solutions. As a means of diagnosis he believed the simultaneous use of the von Pirquet and Calmette tests was most satisfactory: if both were positive or both negative the conclusions were obvious, but if one was positive and the other negative other tests would be required. In over 450 cases in which he had tried it for diagnosis he knew of only six mistakes having occurred. The danger of the Calmette test lay in its indiscriminate use. He never employed it if any history of preceding inflammation or other trouble of the eyes was obtainable. He had used it personally in over 400 cases and had had it performed by an assistant in a number of others, and he had seen no ill results.

J. C. Placak said he had used tuberculin in 136 cases, 89 of which were still alive. He believed that with it patients lived longer or recovered more quickly than if it were not used. It was a dangerous treatment unless very carefully used, especially in advanced cases with elevated temperature: in such, a very small dose should be used. It seemed to have a particularly marked effect upon patients who had a recurrence after an apparent cure: in these the recovery under tuberculin therapy was very rapid. He had given over 15,000 injections and had never had an infection and but very few reactions. He had tried various kinds of tuberculin with varying results.

J. H. Lowman said that tuberculin was now a recognized factor in the therapy of phthisis. Trudeau and others in the Adirondacks had always believed in it and their results proved that it was distinctly useful: they used it in very small doses, even as little as a millionth of a milligram gradually going up to one-tenth and even one milligram, and yet with these doses they occasionally got a reaction. In advanced cases it was not so valuable as in the early ones. As a diagnostic factor it had its limitations. He recently had seen a patient who showed a negative reaction with two simultaneous tests and yet very shortly afterward tubercle bacilli were found in the sputum.

2. Blood Findings in Pertussis, N. B. McGay. (To appear in full in the Journal).

E. O. Houck said the blood count was of great aid in diagnosis as in a case of his in which the child had been sick 15 days and showed but very slight symptoms and had very little cough at night.

W. W. Cowgill asked whether the blood count would differentiate whooping-cough from acute bronchitis with elevation of temperature.

N. B. McGay, in conclusion, said that in acute bronchitis the temperature would be higher, the leukocytosis would be lower, there would be not so marked a lymphocytosis as in pertussis while the polymorphonuclears would be higher.

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#### EXPERIMENTAL MEDICINE SECTION.

The fifty-seventh regular meeting was held at the Cleveland Medical Library Friday, May 26, R. G. Perkins in the chair.

The program was as follows:



1. A Method for the Clinical Estimation of the Blood-flow in Man with Demonstration of Apparatus, G. N. Stewart. (Appearing in full on page 385, May issue).

2. The Relationship of the Suprarenal Gland to the Production of Sugar by the Liver, J. J. R. McLeod, R. G. Pearce and C. B. Christie.

It was pointed out that the commonly held view, that increased sugar production by the liver was due to an increased secretion in that organ of the diastatic ferment (glycogenase), had now been shown to be incorrect. The variability in the activity of glycogenolytic ferment, which of course was alone responsible for this variable sugar production, must consequently depend upon changes in the environment in which a constant amount of ferment acted. Changes in environment were well known to have a very profound influence on the activities of diastatic ferments, particularly the acidity or alkalinity, the nature of the kathions, etc. For ferment activity in the animal body we naturally thought also of the various substances included under the general name of activators or accelerators. Amongst this last group were the secretions of ductless glands and of these the suprarenal, the parathyroids and the isles of Langerhans were definitely known to have some relationship to the glycogenic function of the liver. In order to learn something more about the relationship of ductless glands to the glycogenic function an investigation was begun to determine the percentage of reducing substance in the blood coming from the liver under various experimental conditions connected with these glands.

In the present brief communication results were given concerning the effect of removal of the left suprarenal capsule on the sugar output from the liver following stimulation of the left great splanchnic nerve. When the suprarenal capsule was intact such stimulation invariably caused a marked increase in the percentage reducing power of the blood of the hepatic vein, but when it was removed no such increase was obtained, at least within the time limits of the observation, which was ten minutes after the commencement of stimulation. The result would seem to indicate that stimulation of the splanchnic nerve led to hyperglycemia, because it stimulated the suprarenal to secrete more suprarenalin (adrenalin) into the blood. It was, of course, well known that this very remarkable substance, when injected into the circulation, caused hyperglycemia along with its many other effects. Did this result warrant the conclusion that all the other well known forms of nervous glycosuria were due to suprarenalin hypersecretion? It possibly did, for Mager has also found in rabbits that puncture of the floor of the fourth ventricle of the brain was not followed by glycosuria when both suprarenals had been removed. How the suprarenalin acted was the next step in the investigation. So far it was known that it did not increase the rate of glycogenolysis in incubated mixtures of glycogen and extract of liver nor had it by itself any glycogenolytic powers.

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#### COUNCIL MEETING.

The Council of the Academy met Wednesday, May 3, 1911.

The following names were ordered published: for active membership, W. D. Sharp, J. H. Grossman and H. O. Ruh; for non-resident membership, E. H. Schild, Canton, Ohio. G. B. Stillman was transferred to non-resident membership.

The resignation of F. D. Simons was accepted.

It was voted that the Academy go on record as being in favor of the Ohio State Association organizing proper malpractice protection in the State.

It was voted that the Academy hold no memorial services.

It was voted that all delinquents, except the pharmacists, be suspended.

### Book Reviews.

**An Introduction to Dermatology.** By Norman Walker, M. D., F. R. C. P., Physician for Diseases of the Skin, the Royal Infirmary, Edinburgh. Fifth edition, with 43 colored plates and 79 illustrations. William Wood & Co., New York, 1911. Price \$4.00 net.

This little book of about 350 pages, and now in its fifth edition, is as its title says an introduction to dermatology. At the same time it covers the commoner diseases of the skin quite well and gives the student or physician a good general idea of the subject. The classification of the diseases is in general good, though there seems to be no especial reason why favus and tinea barbae, circinata and tonsurans should be placed under inflammations of the deep epidermis while pityriasis versicolor and erythrasma are classified separately under the heading of saprophytes. Certainly the latter two cause a certain amount of inflammation of the skin and they are all saprophytes. The author does attempt to excuse himself by saying that he follows Unna in so doing.

The binding of the book is good, and paper excellent, while among the 43 colored plates are some of the best illustrations of skin diseases seen in some time. The printer's work has been well done, though on page 85 a citation to a plate facing page 244 should be changed to page 246. Otherwise no typographical errors were noticed. As an introduction to the subject the book can be heartily recommended.

H. N. C.

**Diagnostic and Therapeutic Technic.** By Albert S. Morrow, M. D., Adjunct Professor of Surgery, New York Polyclinic. Octavo of 850 pages, with 815 original line drawings. Philadelphia and London: W. B. Saunders Company, 1911. Cloth \$5.00 net.

We are always having new manuals for this and that, and books on "practical" subjects fill the shelves of medical libraries. They are usually disappointing, because as a rule they are involved and bewildering in often useless detail. In his *Manual of Diagnostic and Therapeutic Technic*, Morrow has succeeded in doing what he set out to do. He has given us a manual which is clearly written, carefully and systematically arranged. The scope of the work is truly enormous. Practically every procedure in daily use for diagnosis or treatment is clearly and concisely described. The text alone would be of great value, but the descriptions are further elucidated by a very large number of excellent drawings, which picture methods of technic, and different instruments and apparatus so clearly as to make the text almost superfluous. The combination of text and illustrations makes a unique book, which will be of great value and assistance to anyone who wishes to look up any method of clinical investigation. There are many little ways of, and tricks for, doing things, which have probably never been described in print before. Methods usually learned by one house officer from another, or imparted by one practitioner to another. The author is to be congratulated on the general excellence of his book. It is well made, the type and paper are pleasing, and the illustrations excellent.

R. D.

**Plaster of Paris and How to Use It.** By Martin W. Ware, M. D., Adjunct Attending Surgeon, Mount Sinai Hospital; Surgeon to the Good Samaritan Dispensary; Instructor of Surgery in the New York Post-Graduate School. Second edition, revised and enlarged. Price, cloth, square form \$1.25. De Luxe leather \$2.50. Surgery Publishing Co., New York.

In this book one is told what can be done with plaster of Paris. However there are a few things that do not seem consistent. One of



them is to lay marked stress on the advisability of holding the foot at right angles in fractures of the lower leg, in order to prevent toe drop, and not to mention it in tuberculosis of the hip, where the danger of its occurring is more marked unless the patient is allowed to bear weight upon the leg, which seems to be accepted as an unfavorable procedure in these latter cases. Again the author states that "experience has shown that no metal or wood strips need be incorporated in the plaster of Paris dressing" but within the next few pages writes concerning "veneering strips" being used. On page 84 there is a picture of an appliance for aiding in the correction of torticollis; this is misleading as it gives the impression that flexion of the head is the only deformity to be corrected, while in the congenital types there are three distinct things to overcorrect: 1. rotation; 2. flexion; 3. raising of the chin. The last sentence of the book is concerning club foot and the author states that "the patient is allowed to walk about in this dressing for a month or a year, depending on the degree of severity of the condition"!

G. N. M.

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The Practical Medicine Series. Vol. I. General Medicine. Edited by Frank Billings, M. S., M. D., and J. H. Salisbury, A. M., M. D. Series 1911. The Year Book Publishers, Chicago. Price \$1.50.

This book contains 400 pages of solid reading matter, covering nearly the entire field of medicine. A feature of this little volume is that while intended primarily for the general practitioner the arrangement in several volumes enables those interested in special subjects to buy only those parts they desire. The table of contents, general index and index of authors will be found useful for those engaged in preparing medical papers at short notice. The subject matter appears to be carefully chosen.

A. F. F.

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One Thousand Surgical Suggestions. By Walter M. Brickner, B. S., M. D., Adjunct Surgeon Mount Sinai Hospital, Editor in Chief American Journal of Surgery, with the collaboration of James P. Warbasse, M. D., Harold Hays, M. D., Eli Moschowitz, M. D., and Harold Neuhoof, M. D. 225 pages; cloth bound, semi de luxe \$1.00; full de luxe, leather \$2.25. Surgery Publishing Company, 92 William Street, New York.

This is the fourth edition of the original work appearing in 1906, and since that time has quadrupled in size. The subject matter is arranged under various headings, and each suggestion given is not only of importance but is plainly and forcibly expressed so as to impress itself upon the reader.

W. H. W.

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Diseases of the Nose, Throat and Ear. Medical and Surgical. By William Lincoln Ballenger, M. D., Professor of Otology, Rhinology, and Laryngology, College of Physicians and Surgeons, Department of Medicine, University of Illinois, Chicago; Fellow of the American Laryngological Association, etc. Third edition, revised and enlarged, 983 pages; illustrated with 506 engravings and 22 plates. Lea & Febiger, Philadelphia and New York, 1911.

The appearance of the third edition of this well known work within a space of three years, speaks well for its continued popularity. In our review of the first edition we took occasion to criticise the omission of certain chapters which should properly have been included in a work of this character. Most notable among these omissions was that on the recent progress in the diagnosis and treatment of diseases of the labyrinth. The second edition was a marked improvement on the first, an increased amount of space being given to the internal ear. In the present

edition this chapter has been revised and enlarged. Care in the selection of illustrations, their clearness and marked profusion, has always been a striking characteristic of Ballenger's book. In the present edition not only is this reputation maintained, but there is an addition of 60 new drawings and five new plates to those contained in the previous second edition. Altogether we consider this book a most excellent one, thoroughly up to date and greatly improved by the frequent recent revisions. It is probably the best single volume work, embracing the three subjects of nose, ear and throat in the English language. W. B. C.

### Acknowledgments.

American Practice of Surgery. A Complete System of the Science and Art of Surgery, by Representative Surgeons of the United States and Canada. Editors: Joseph D. Bryant, M. D., LL. D., and Albert H. Buck, M. D., of New York City. Complete in eight volumes, profusely illustrated. Volume VIII. William Wood & Co., New York City.

A Handbook of Practical Treatment. Vol. II. Edited by John H. Musser, M. D., and A. O. J. Kelly, M. D. Octavo of 865 pages, illustrated. Price, cloth, \$6.00 net; half morocco, \$7.50 net. W. B. Saunders Co., Philadelphia and London.

Gonorrhea in the Male. A Practical Guide to its Treatment. By Abr. L. Wolbarst, M. D., Consulting Genito-urinary Surgeon, etc. Published by The International Journal of Surgery Co., New York. 1911.

Food and Principles of Dietetics. By Robert Hutchinson, M. D. Edin., F. R. C. P. With plates and diagrams. Third edition. Wm. Wood & Co., New York. Price \$3.00 net.

What Shall I Eat? A Manual of Rational Feeding. By Dr. F. X. Gouraud, formerly Chief of the Laboratory of the Medical Faculty of Paris. With a preface by Prof. Armand Gautier, of Paris. Only authorized translation into the English language by Francis J. Rebman. With a glossary containing definitions of the principal technical terms, and an index of the diseases referred to in the text. Rebman Company, New York. Price, cloth, \$1.50.

Medical Jurisprudence, Forensic Medicine and Toxicology. By R. A. Witthaus, A. M., M. D., and Tracy C. Becker, A. B., LL. B. Second Edition, Vol. IV. Wm. Wood & Co., New York.

The Practical Medicine Series. Vol. II, General Surgery, edited by John B. Murphy, A. M., M. D., LL. D. Vol. III, Eye, Ear, Nose and Throat, edited by Casey A. Wood, C. M., M. D., D. C. L., A. H. Andrews, M. D., and G. P. Head, M. D. Series 1911. The Year Book Publishers, Chicago.

Health Hints and Health Talks. By E. R. Pritchard, Secretary of the Chicago Department of Health. The Reilly & Britton Co., Chicago. Price, 50c.

Tuberculosis as a Disease of the Masses and How to Combat It. Seventh American edition, enlarged and revised with 64 illustrations. Prize Essay by S. Adolphus Knopf, M. D., New York. Price 25 cents, postage prepaid.

Golden Rules of Pediatrics. By John Zahorsky, A. B., M. D., with an introduction by E. W. Saunders, M. D. C. V. Mosby Co., St. Louis. Second edition, price, \$2.50.

A Practical Medical Dictionary. By Thomas Lathrop Stedman, A. M., M. D. Illustrated. Wm. Wood & Co.

Merck's Manual of the Materia Medica. Fourth edition. Merck & Co., New York.



Report of the Tenth Annual Conference of Sanitary Officers of the State of New York.

Transactions of the College of Physicians of Philadelphia. Third Series. Vol. XXXII.

Annual Report of the Library Committee of the College of Physicians of Philadelphia. For the Year 1910.

Public Health and Marine Hospital Service of the United States: Hygienic Laboratory Bulletin No. 75. Public Health Bulletin No. 43. Public Health Reports, Vol. XXVI, No. 16. Reprint from Public Health Reports No. 59.

Leland Stanford Junior University Bulletin. Department of Medicine. Annual Announcement, 1911-1912. Second Series, No. 56.

Annual Report of the Surgeon General of the Public Health and Marine Hospital Service of the United States. For the Fiscal Year 1910.

Public Health and Marine Hospital Service of the United States: Reprints from Public Health Reports Nos. 57 and 58.

Thirty-fifth Annual Report of the New York State Reformatory at Elmira and the Tenth Annual Report of the Eastern New York Reformatory at Napanoch.

New York State Department of Health. Extracts from the Thirty-first Annual Report. 1910.

Fifteenth Annual Report of the State Medical Board of Ohio. 1910.

Thirty-seventh Annual Report of the Medical Director of the Cincinnati Sanitarium for the year ending November 30, 1910.

Reprints by: G. E. de Schweinitz, Philadelphia; Charles Goodman, New York City; Leo Kristeller, New York City; Rudolph Matas, New Orleans, La.; Carroll W. Allen, New Orleans, La.; F. W. Langdon, Cincinnati, O.; Eugene H. Porter, New York; J. MacDonald, Jr., New York; Dwight W. Hunter, New York.

## Medical News.

**The Lakeside Hospital Medical Society** held its fifty-fifth monthly meeting Wednesday, May 31. The program was as follows: 1. Presentation of a Case of Hemorrhagic Myelitis. C. W. Wyckoff. 2. Presentation of a Case of Endothelioma of the Orbit, H. A. Coleman. 3. Presentation of a Case of Purpuric Eruption following the Bite of a Horse, A. S. Jones. 4. Presentation of a Case of Tricuspid Regurgitation, H. L. Taylor.

**Mark D. Stevenson and E. A. Weaver**, Akron, have moved their office and hospital from the Everett Bldg., 39 East Market St., to 165 East Market Street.

**Y. L. Stevens, W. E. Loughridge and Y. A. Yoder**, Mansfield, attended the meeting of the State Society in Cleveland.

**Y. H. Nichols and E. Renny**, Mansfield, are forming a company to lease Walker's Lake and the privilege of fishing there during the season.

**A. Y. Irwin**, Mansfield, has returned from Los Angeles to resume his practice in eye, ear, nose and throat work during the summer.

**The Muskingum County Medical Society** met at Zanesville, Wednesday, May 10. The following program was presented: 1. Differential Diagnosis Between Gastric Ulcer, Chronic Appendicitis and Gall-Stones, C. U. Hanna. 2. Grafting, C. H. Higgins.

**The Tuscarawas County Medical Society** met at Uhrichsville, Tuesday, May 2, 1911. The program was as follows: 1. The Prophylaxis and Treatment of Puerperal Injuries of the Cervix and Perineum, D. W. Shumaker, Canal Dover. 2. The Non-Surgical Treatment of Retrodisplacements of the Uterus, C. U. Patterson, Uhrichsville. 3. Fibroid and

Cystic Tumors of the Uterus and Its Appendages, J. F. Baldwin, Columbus.

Robert Walker, Toledo, has moved his office to the Nicholas Bldg. W. H. Snyder, Toledo, is taking a European trip.

### Meetings of the Academy of Medicine of Toledo and Lucas County:

The Medical Section met Friday, April 21, 1911. The program was as follows: 1. Pathogenesis of Edema Nephritis with a Consideration of the Effect of a Salt Diet, W. A. Dickey. 2. Recent Studies in Experimental Nephritis, L. A. Smead. 3. The Management of Arterial Hypertension, C. G. Souder. 4. Ocular Findings in Chronic Nephritis, E. J. Wilkinson.

The Surgical Section met Friday, April 28. The program was as follows: 1. Tumors of the Bladder: Demonstration of the Fulguration Method of Removal, C. M. Harpster. 2. Bronchoscopy and Esophagoscopy, Thos. Hubbard. 3. Esophageal Surgery, C. N. Smith. 4. X-Ray Demonstration of Foreign Bodies in the Bronchi and Esophagus, Harry Dachtler.

The General Meeting of the Academy was held Friday, May 5. The program was as follows: 1. Etiology of Eclampsia, Herbert Smead. 2. Treatment of Eclampsia, G. B. Booth. The discussion was opened by C. F. Tenney and W. G. Dice.

The Pathological Section met Friday, May 12. The program was as follows: 1. Changes in the Normal Endometrium during Menstrual Life, C. G. Souder; discussion opened by John P. Gardiner. 2. Fibrosis Uteri, Julius H. Jacobson; discussion opened by C. D. Selby.

The Medical Section met Friday, May 19. The program was as follows: 1. Case Report and Demonstration of Patient with Dercum's Disease, L. A. Levison. 2. Etiology and Pathology of Small Cystic Degeneration of the Ovaries, L. A. Smead; discussion opened by C. W. Moots. 3. The Hyper- and Hypo-Thyroid Gland in Childhood, Chas. F. Tenney; discussion opened by Ralph Stewart and W. G. Dice.

**American Bureau of Information of the International Committee for Postgraduate Medical Education:** The Delegates of the United States to the International Committee for Postgraduate Medical Education will maintain a Bureau of Information on Medical Education, particularly Postgraduate Medical Education. All available information on this subject will be kept on file for the benefit of those who inquire personally or by mail about the educational facilities in the different medical centres of the world. This Bureau of Information will be located at 303 East 20th Street, New York City, and will bear the name of: American Bureau of Information of the International Committee for Postgraduate Medical Education.

All communications should be addressed to "Medical Information Bureau, 303 East 20th Street, New York City." Communications requiring answer must be accompanied by stamped envelope.

**Army Medical Corps Examination:** The Surgeon General of the Army announces that preliminary examinations for the appointment of first lieutenants in the Army Medical Corps will be held on July 10, 1911, and September 5, 1911, at points to be hereafter designated. Full information concerning these examinations can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." Applications must be complete and in possession of the Adjutant General at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present 61 vacancies in the Medical Corps of the Army.

**Circular Issued by the American Orthopedic Association and the American Pediatric Society in Reference to Acute Epidemic Poliomyelitis, and Addressed to Health Authorities, and Boards of Health.**



Anterior poliomyelitis is, so far as known, a communicable disease, being communicated from one patient to another and also by means of a third person. It occurs in epidemics and tends to spread along the lines of greatest travel. There is reason to believe that it is prevented from spreading by quarantine, and with the very great prevalence of this disease in the summer of 1910 it is the opinion of this committee that it is essential that it should be made a reportable disease in all States in order that its presence may be detected and its spread guarded against.

Of particular significance are the so-called abortive cases, in which indefinite ailments occur in children in communities where frank paralysis also exists. These abortive cases of infantile paralysis are undoubtedly a source of infection, and their record and study is of much importance. In a community where cases of infantile paralysis occur, cases of illness with sudden onset of fever and meningeal symptoms should be closely watched and regarded as possibly infectious. In such cases even recovery without paralysis does not establish the fact, that the case was not abortive infantile paralysis.

All cases of infantile paralysis should be strictly quarantined, sputum, urine and feces being disinfected, and the same rigid precautions being adopted as in scarlet fever. This quarantine should, in the opinion of the committee, last for four weeks in the absence of definite knowledge as to when the infection ends. Children from infected families should not be allowed to go to school until the quarantine is abandoned. The transportation or transfer of acute cases in public conveyances should be strictly forbidden. It would be very desirable to adopt provisional quarantine measures in suspicious cases in a community where an epidemic prevails. The report of all cases of infantile paralysis to the public health authorities should be enforced by law, and all deaths from this cause should be properly described and registered. A careful study of epidemics by public health authorities is strongly advised.

(Signed) ROBERT W. LOVETT, M. D., Chairman.  
HENRY KOPLIK, M. D.  
H. WINNETT ORR, M. D.  
IRVING M. SNOW, M. D., Secretary.

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### Deaths.

**John Hurlbert**, Uniopolis, Ohio, died April 24, aged 58.

**Henry Slosson**, Youngstown, Ohio, died April 23, aged 75.

**Francis S. W. Cook**, Toledo, Ohio, Died March 13, aged 56.

**Adolphus T. Keckler**, Cincinnati, Ohio, died April 22, aged 80.

**Aaron Busby**, Osnaburg, Ohio, died May 9, aged 67.

**Adam L. Jackson**, Columbus, Ohio, died May 7, aged 61.

**Herbert S. Darling**, Fredericktown, Ohio, died March 16, aged 49.

**Albert H. Bill**, Cuyahoga Falls, Ohio, died May 9, aged 60.

# The Cleveland Medical Journal

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VOL. X

JULY, 1911

No. 7

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## Tuberculin, Its Use and Administration.

By E. R. BROOKS, M. D., Cleveland.

In 1890 Robert Koch announced that he had discovered a cure for tuberculosis by the use of a substance which he called tuberculin. This, at first, was an unconcentrated broth filtrate from a culture of human tubercle bacilli. Later he discarded this for what is called his original or old tuberculin, a bouillon culture of human tubercle bacilli six to eight weeks old, boiled for one hour, concentrated to one-tenth its volume and filtered through a Chamberlain filter, the resulting product containing 50% glycerin.

He advised the use of this old tuberculin only in early cases, starting with a subcutaneous injection of 1 mg., repeating this dose till there was no reaction and then giving 2 mg. in the same way, and so on. He believed that the tuberculin acted only on the living diseased tissue around the focus of infection. This he thought was softened and cast off, sometimes sloughing off in its entirety. Hence, as the diseased tissue disappeared, a larger dose was necessary to obtain the same grade of reaction as before, till there was no diseased tissue left, and the patient was cured.

Koch continually emphasized the fact that only incipient cases should be so treated, hence the importance of early making a diagnosis, but his instructions were disregarded by a large number of men, with very disastrous results, many advanced cases being hurried into their graves by such a course of tuberculin treatment. Virchow in 1891 reported these harmful results, from his pathological findings, and tuberculin came into great

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*Read before the Academy of Medicine of Cleveland, May 19, 1911.*



disfavor, only a few men clinging to its use, among whom were Spengler, Petruschky, Krause and Trudeau.

It was seen from these reports of the morbid anatomist that this rapid destruction of tuberculous tissue was very dangerous and was liable to set free tubercle bacilli to be carried all over the body, so the indication was to very materially decrease the dose and as far as possible avoid a reaction. This is the modern therapeutic use of tuberculin. The modern view is that the tuberculin treatment accomplishes a twofold purpose: first, a production of toxic immunity, and second, a local hyperemia around the diseased focus.

As fever, malaise, headache, loss of appetite, etc., are the result of the toxins produced in the body by the tubercle bacilli, tuberculin, which neutralizes this toxin more or less, should be a great aid in doing away with these unwelcome symptoms. This is, in great measure, the truth, as a course of tuberculin does tend to counteract these symptoms. The local hyperemia, as is well known, exerts a very favorable influence on healing the diseased area and shortening the course of the disease.

Koch found that injecting large doses of the bacilli into the body caused abscesses at the point of injection, so he and other workers have tried to separate the beneficial agent from the bacilli. As a result we have Koch's tuberculin residue, an unheated, 20% glycerin emulsion of living, virulent, pulverized tubercle bacilli which have first been extracted with water; Koch's bacillen emulsion, an unheated, 50% emulsion of living, virulent, pulverized tubercle bacilli, containing 5 mg. of solid substance in each c. c. Von Ruck's watery extract, in which the tubercle bacilli are washed with water and then first extracted with alcohol and ether, pulverized and finally extracted with water at 50° C.; Deny's bouillon filtrate, the unheated unconcentrated bouillon culture of human tubercle bacilli, filtered through porcelain; and so on.

Different men use different forms of tuberculin but the results of all seem favorable. Personally, I have used Deny's bouillon filtrate and have had excellent results with it. The aim has been to avoid as far as possible all reaction, the temperature, weight, and all subjective symptoms being carefully observed. Four dilutions were prepared, using a 0.25% carbolic acid in physiologic salt solution as a diluent: The strongest solution

which was called A, contained 1 mg. of tuberculin in 1 c. c. of the solution. The next, solution B, contained 1/10 mg. of tuberculin in 1 c. c. of the solution. The next, solution C, contained 1/100 mg. of tuberculin in 1 c. c. of the solution and the weakest, solution D, contained 1/1000 mg. of tuberculin in 1 c. c. of the solution. The solutions should be freshly made every two or three weeks.

The cases were under observation for some time till the temperature remained fairly constant at normal and the general condition had improved. Then, in suitable cases, the tuberculin injections were started, and all symptoms carefully watched.

The site of the injections was the outer aspect of the upper arm and the tuberculin was injected deeply into the tissues. Koch, and some others, advise as the best spot, the skin of the back between, or just below, the shoulder blades. For convenience, I have used the upper arm, alternating arms each time, and have only once had any trouble resulting from the injection, the patient complaining for several weeks of stiffness of that arm. All the preparation of the arm that was made was the application of a small drop of lysol, through which the injection was made, and as yet I have not had one instance of infection. No dressing of any kind was applied afterwards.

In children, and in some of the severer cases, I started with the weakest solution, D, but in the majority of cases I started with solution C, giving as the initial dose 1/10 of 1 c. c. of the solution, corresponding to 1/1000 mg. of tuberculin in solution D and 1/100 mg. of tuberculin when using solution C.

White and Van Norman, of Pittsburg, by making use of the cutaneous test, have worked out a method by which they can ascertain the initial dose of tuberculin to be injected by a comparison of the inflammatory skin reaction resulting from a given amount of tuberculin. They keep injecting this same dose till the cutaneous test indicates a change of dosage.

In my own cases, the preceding dose was doubled at each injection, provided there were no contra-indications to increasing the dose, going to the next higher dilution as soon as 1 c.c. had been given, 1/10 of 1 c.c. of the higher dilution containing the same amount of tuberculin as 1 c.c. of the solution just given.

The injections in the case of dilutions C and D were given three times a week, with B twice a week and with A once a



week, provided there were no indications for lengthening the interval. They were given till the patient received 1 mg. of the tuberculin at a dose. They were then discontinued and after an interval repeated in part.

In case of a general reaction, fever or any intercurrent indisposition, the injection was omitted till the patient's condition was normal again and then he was started on the same or a smaller dose at the next injection. The injections should be given as long as the patient continues to improve or till he is cured.

In all, 75 cases have so far been treated, with very favorable results. As a general rule the cough and expectoration were increased for a week or two, due no doubt to the local stirring up of the process. From then on, in a number of cases, the cough and expectoration were considerably lessened, practically disappearing in some of the best cases.

In a considerable number the appetite improved and there was a general feeling of well-being. The patients felt stronger and in one case in particular a persistent, nervous feeling disappeared soon after starting the injections.

During the interval following the completion of one course of injections and before starting another, five of the patients in whom the cough had practically disappeared, began, a week or two after discontinuing the injections, to cough and expectorate more than they had done for several months, and to lose in weight, all of which was very soon remedied by resuming the injections.

In looking over my weight charts I find that time after time, the gain in weight has received a big impetus from giving the injections, one case which remained stationary for four weeks before starting the injections gaining 13 lbs. in the next three weeks after they were begun.

Two cases of fistula in ano, now taking the injections, show some improvement, but I don't know as yet whether they will be entirely healed or not.

One case of tuberculosis of the cervical glands, which had a discharging sinus for eight or nine months following operation, closed up entirely in about two months after starting the injections and appears perfectly healed after about seven months, while several large glands which were present at the commence-

ment of the treatment have almost disappeared. One other case of general glandular tuberculosis was not benefited.

Another case, which, following an operation for tuberculosis of the cervical glands, had large discharging sinuses, was improving quite rapidly, but left before the treatment was very far along.

A case of Pott's disease, from which I aspirated a pint or more of fluid at four different times, has in the last year gained 50 lbs. and shows no signs of active tuberculosis remaining at the former focus.

Several advanced cases running a daily evening rise of temperature were not benefited, it being necessary to discontinue the injections after a short course.

Of the cases treated 33% were first stage, 34% second stage, and 25% third stage cases, with 4% each of glandular and bone tuberculosis.

Of these, 86% showed decided improvement during or following the course of treatment, 22% being apparently cured, while 14% did not improve.

It seems to be the general opinion of the best men that the use of tuberculin tends to produce a more rapid and a more permanent cure. The cough improves, the sputum becomes less, the tubercle bacilli in the sputum are lessened in number or disappear entirely.

Just a word as to the diagnostic use of tuberculin. The methods most generally used are von Pirquet's, Morro's, Calmette's and the subcutaneous test. In von Pirquet's method, Koch's old tuberculin is used. An area of skin, fairly free from hair, should be selected, the usual site being the inner aspect of the forearm. The arm is cleansed with alcohol and ether and two small drops of tuberculin are applied about four inches apart. A circular scarification is now made through these drops with a von Pirquet scarifier, and a scarification is also made midway between the two as a control, care being taken not to draw blood. Usually after 24 hours the reaction is well developed, reaching its maximum at about 48 hours. The reaction consists of a papule about 10 mm. in diameter, having an irregular margin. As the test reacts to tuberculosis in the body whether active, latent or healed, its value as a diagnostic agent



in adults is extremely limited, its principal use being as an aid to diagnosis in very small children.

The Morro, or percutaneous test, consists in rubbing a specially prepared tuberculin ointment into the skin, preferably of the abdomen, the skin having first been cleansed with ether. A positive reaction is indicated by a number of small red points which may extend into decided papules. According to the best observers, the Morro test is not nearly so certain as the von Pirquet or subcutaneous test.

The Calmette test consists in the instillation of a drop of tuberculin solution into the conjunctival sac. A positive reaction is shown in 6 to 24 hours by an inflammatory irritation of the conjunctiva. The test is not as certain as the others and is liable to cause lasting injury to the eye, so should not be generally used.

The subcutaneous test consists in the injection of a definite amount of tuberculin, usually  $2/10$  of 1 mg. as an initial dose, beneath the skin. The temperature should be taken at two or three hour periods for three days before the test and the corresponding times afterward. A reaction is shown by both a focal and a general manifestation. The focal reaction is often indicated by increased rales at the focus of infection, if in the lungs, with pain at this point and often by the presence of bacilli in the sputum when none could be demonstrated before. The general reaction is accompanied by a rise in temperature, starting six to eight hours after the injection, and in a typical severe reaction this rise in temperature is accompanied by chills, giddiness, pain in the back and limbs and nausea; that is by a general malaise, which subsides of its own accord in the next few days. In case no reaction is obtained by the initial dose of  $2/10$  mg. of tuberculin, the injection should be repeated in 48 hours with 1 mg., and twice more at intervals of 48 hours, provided no reaction whatever has occurred, with doses of 5 mg. and 10 mg. respectively. If no reaction is then obtained the patient may, with a reasonable degree of certainty, be said to be free from tuberculosis. I think that because of the liability to stir up an old focus of infection, the subcutaneous method should be used only in extreme cases and then by an experienced physician.

To sum up, tuberculin is a valuable aid to both diagnosis and treatment. Properly used it is not dangerous, but again

I wish to emphasize the necessity of avoidance, as far as possible, of a general reaction. Nothing is gained by hurrying the course of the injections, but one must very gradually work up to the individual maximum dose and maintain that dose as long as improvement continues, or repeat the course of injections in whole or part.

The best observers have found that tuberculosis is cured more quickly with the aid of tuberculin and the results are more permanent than when it is not used.

Tuberculin is not a specific in the treatment of tuberculosis as is mercury in syphilis, but is simply a further aid, to be used in conjunction with every known means of modern science to effect a cure of this so prevalent a disease.

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### **Study of the Blood in Pertussis, With Report of 120 Cases.**

By N. P. MCGAY, M. D., Assistant Physician, Charity Hospital Dispensary; Clinical Assistant in Medicine, Western Reserve University.

During a recent epidemic of whooping cough at St. Ann's Infant Asylum, over 100 cases came under my observation, 108 to be exact. Seeing in this calamity a wealth of clinical material I undertook to make an exhaustive study of the blood at the beginning of every case, to see what, if any, bearing my findings might have with the diagnosis of the disease before the clinical whoop had made its appearance, and to tabulate my results in such a way that they could be available for reference at any future time.

Since the epidemic above mentioned, I have examined blood from some 30 other cases of suspected pertussis in private practice, also blood from numerous cases of pneumonia and bronchitis, and normal blood for comparison.

The first work done on the blood of pertussis patients was in 1897 by Frolick<sup>1</sup> of Breslau; since then Mennier<sup>2</sup>; De Amici and Paccioni<sup>3</sup>; Stengel and White<sup>4</sup>; Wanstall<sup>5</sup>; Cabot<sup>6</sup>; Maggia and Bertolotti<sup>7</sup>; Guilee and Phemister<sup>8</sup>, Stevens<sup>9</sup>, Churchill<sup>10</sup>, Barach<sup>11</sup>, Crombie<sup>12</sup>, and Kolmer<sup>13</sup> have all reported cases, a total of 341 which I have been able to collect from literature. Their findings, summed up, show a leukocytosis present about the time the child first begins to cough, reaching its height in the spasmodic stage; a lymphocytosis developing as the leukocytes increase; when improvement begins, a decrease in the lymphocytes

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*Read before the Academy of Medicine of Cleveland, May 19, 1911.*



and leukocytes and an increase in the polymorphonuclears, the normal ratio being reached after several months.

My work, while somewhat similar to that of these authors was, nevertheless, entirely different in other respects, as all my examinations had to do with the relative value of the leukocytosis and lymphocytosis as a means of diagnosis and as a criterion as to the course and prognosis of the disease.

Of the 108 cases at St. Ann's, only 90 were available when the cough was first noticed. Of these 36 were selected at random, together with 10 of the 30 private cases, for the blood examination. In all cases examined a leukocytosis of from 7,600 to 46,000 was found, as well as a lymphocytosis, with a decrease in the polymorphonuclears, as shown by the following tables:

No.	Age	White Cells	Polys.	Small Lymphs	Large Lymphs	Trans., Eosins. and Mastz
51	7 mo.	17000	40.0%	51.0%	7.0%	5.0%
52	6 mo.	15000	7.0	42.0	47.3	3.6
63	2 mo.	38300	58.0	29.0	9.0	4.0
71	6 mo.	22430	51.0	32.0	12.0	5.0
76	2 mo.	20840	53.1	34.1	10.0	2.0
81	2 mo.	25700	37.5	44.0	14.0	4.5
82	18 mo.	43680	61.0	23.0	11.5	4.5
90	1 mo.	22000	40.0	38.0	19.0	3.0
93	3 mo.	21320	38.0	40.0	18.0	4.0
94	6 mo.	23710	48.0	37.0	12.0	3.0
95	1 mo.	46000	33.0	55.0	10.0	2.0
96	1 mo.	31300	28.0	50.0	18.0	7.0
97	6 mo.	31200	71.0	18.0	5.0	5.5
99	9 mo.	27600	47.5	41.0	4.5	7.0
101	6 mo.	19700	29.0	50.0	17.0	4.0
201	24 mo.	28800	30.1	61.5	5.0	3.4
202	26 mo.	16300	29.3	54.2	12.5	4.0
204	15 mo.	10400	8.3	49.5	40.0	2.1
206	21 mo.	21000	21.4	45.3	29.1	4.2
207	18 mo.	26680	45.0	40.0	13.0	2.0
208	18 mo.	17680	30.8	45.0	19.5	4.6
211	18 mo.	15200	11.1	50.0	35.4	3.4
212	18 mo.	19630	36.3	43.5	16.2	4.0
213	26 mo.	12170	15.0	50.5	30.8	4.0
214	22 mo.	11190	9.2	39.8	43.5	7.5
215	11 mo.	14400	10.5	48.7	38.2	2.5
216	10 mo.	35580	43.0	31.0	21.0	5.0
217	16 mo.	23840	38.5	41.0	15.5	5.0
218	14 mo.	22000	37.0	41.0	19.0	3.0
219	10 mo.	22150	37.0	41.0	20.0	2.0
220	18 mo.	33400	64.7	26.4	7.7	1.2
221	14 mo.	20170	24.5	40.0	30.2	5.2
231	13 mo.	16790	21.8	53.2	19.7	5.2
232	17 mo.	24210	30.3	38.7	25.1	5.8
242	18 mo.	14800	9.1	51.6	37.2	2.2
321	13 mo.	12000	8.0	45.0	45.0	1.0
36 cases						
Average	12 mo.	22338	33.4%	42.3%	20.5%	3.9%

No.	Age	White Cells	Polys.	Small Lymphs	Large Lymphs	Trans., Eosins, and Mastz
5	10 yr.	16150	59.9%	28.1%	10.4%	1.5%
12	3 mo.	22100	22.7	52.2	18.1	6.8
274	22 mo.	11190	9.2	39.8	43.5	7.5
7	4 mo.	*7600	35.5	49.0	14.5	1.0
10	11 mo.	5200	24.6	51.6	21.4	2.4
11	24 mo.	7900	28.7	51.2	16.2	2.7
3	5 mo.	†25400	35.0	30.2	32.8	2.0
87	23 mo.	14760	42.9	33.9	21.2	2.5
18	11 mo.	10000	48.0	42.0	8.5	1.5
23	8 mo.	8866	39.2	40.0	18.8	2.0
*10 cases (private).						
Average	21 mo.	12916	34.6%	41.8%	20.5%	3.9%
†36 cases (institutional).						
Average	12 mo.	22338	33.4	42.3	20.5	3.9
46 cases						
Average	16½ mo.	17627	34.0%	42.0%	20.5	3.5

As a means of control I made a differential count from the blood of apparently healthy institutional children, with the following result:

No.	Age	White Cells	Polys.	Small Lymphs	Large Lymphs	Trans., Eosins, and Mastz
1	10 mo.	16000	47.5%	28.5%	20.9%	3.7%
2	6 mo.	10840	42.1	45.4	8.7	3.8
4	12 mo.	12000	53.5	28.4	13.2	4.9
6	18 mo.	11900	35.1	47.4	16.0	1.5
8	23 mo.	10850	48.3	35.7	12.8	3.2
9	18 mo.	12000	26.7	42.3	28.3	2.7
10	17 mo.	8700	29.0	51.5	16.5	3.0
13	16 mo.	9630	32.7	45.3	16.3	5.7
17	8 mo.	14730	41.5	14.6	34.2	9.7
27	12 mo.	8920	51.0	30.0	19.0	1.0
10 cases						
Average	14 mo.	11557	40.6%	36.9%	18.6%	3.9%

Comparing the averages in the 46 pertussis cases with the 10 normal cases we find an average increase of 6,070 in the leukocyte count, or approximately 33%; an increase of 1.9% in the large mononuclears, and of 5.0% in the lymphocytes, and a decrease of 6.0% in the polymorphonuclears; the combined lymphocytes showing an increase of 7.0%, the transitionals, eosinophiles and mast cells remaining approximately the same.

As a means of further comparison, I made numerous differential counts in cases of simple bronchitis, the six following, selected at random, as have been the other counts, are as follows:



Nor	Age	White Cells	Polys.	Small Lymphs	Large Lymphs	Trans., Eosins, and Mastz
21	4½ yr.	30000	58.8%	29.4%	5.9½	5.8%
28	1 mo.	17000	49.9	23.3	19.9	6.7
29	2 mo.	11400	44.1	30.4	21.6	4.9
30	½ mo.	8400	49.8	13.2	29.8	7.3
31	2½ mo.	6800	41.0	21.0	35.5	1.5
32	9 mo.	11430	55.8	25.2	16.2	3.6
6 cases Average	11½ mo.	14171	48.8%	23.7%	21.5½	4.8%

For further comparison I made many counts of the blood from children suffering with pneumonia. In order to avoid unnecessary compilation, I shall give only four of them, as the counts are all much alike.

No.	Age	White Cells	Polys.	Small Lymphs	Large Lymphs	Trans., Eosins, and Mastz
37	3 mo.	26400	85.5%	9.0%	6.0%	3.9%
41	4 mo.	17500	41.1	23.0	29.9	6.0
42	18 mo.	19650	53.3	27.0	13.3	5.4
48	7 mo.	13660	57.8	18.9	20.0	2.9
4 cases Average	8 mo.	19302	59.4%	19.5%	17.3	3.9

From the above two tables it will be seen that the polymorphonuclear count is much higher than in the pertussis tables, while the lymphocyte count, both small and large, is considerably decreased.

In order to better see what, if any, relation there was between the increase in the leukocytes and the differential elements, I subdivided the 46 cases into five groups according to the white blood count, viz., those in which the leukocyte count was from:

5000 to 15000.....	15 cases
15000 to 20000.....	7 cases
20000 to 25000.....	12 cases
25000 to 30000.....	5 cases
30000 to 35000.....	6 cases

From the tables following, it will be seen that the lower the leukocyte count, the higher the lymphocytes and the lower the polymorphonuclears; and that as the leukocytes increased so did the polymorphonuclears, while the lymphocytes decreased in relatively the same proportion.

## 5000 to 15000

No.	White Cells	Polys.	Small Lymphs	Large Lymphs	Trans., Eosins, and Mastz
7	7600	35.5%	49.0%	14.5%	1.0%
10	5200	24.6	51.6	21.4	2.4
11	7900	28.7	51.2	16.2	2.7
18	10000	48.0	42.0	8.5	1.5
23	8866	39.2	40.0	18.8	2.0
52	15000	7.0	42.0	47.4	3.5
87	14760	42.9	33.9	21.2	2.5
204	10400	8.3	49.5	40.0	2.1
211	15200	11.1	50.0	35.4	3.5
213	12170	15.0	50.5	30.5	4.0
214	11190	9.2	39.8	43.5	7.5
215	14400	10.5	48.7	38.2	2.5
242	14800	9.1	51.6	37.2	2.0
274	11190	12.1	38.8	43.5	7.5
321	12000	8.0	45.0	45.0	1.0
15 cases Average	11378	20.6%	45.6%	30.7	3.0

## 15000 to 20000

No.	White Cells	Polys.	Small Lymphs	Large Lymphs	Trans., Eosins, and Mastz
5	16150	59.9%	28.1%	10.4%	1.5%
51	17000	40.0	51.0	7.0	5.0
101	19700	29.0	50.0	17.0	4.0
202	16300	29.3	54.2	12.5	4.0
208	17680	30.8	45.0	19.5	4.6
212	19630	36.3	43.5	16.2	4.0
231	16790	21.8	53.2	19.7	5.2
7 cases Average	17607	35.1%	46.4%	14.6	4.0

## 20000 to 25000

No.	White Cells	Polys.	Small Lymphs	Large Lymphs	Trans., Eosins, and Mastz
12	22100	22.7%	52.2%	18.1%	6.8%
71	21430	51.0	32.0	12.0	5.0
76	20840	53.0	34.0	10.0	2.0
90	22000	40.0	38.0	19.0	3.0
93	21320	38.0	40.0	18.0	4.0
94	23710	48.0	37.0	12.0	3.0
206	21000	21.4	45.3	29.1	4.2
217	23840	38.5	41.2	15.5	5.0
218	22000	37.0	41.0	19.0	3.0
219	22150	37.0	41.0	20.0	2.0
221	20170	24.5	40.0	30.2	5.2
232	24310	30.3	38.7	25.1	5.8
12 cases Average	22064	36.8%	40.0%	19.0	4.1



## 25000 to 30000

3	25400	35.0%	30.0%	32.8%	2.0%
81	25700	37.5	44.0	14.0	4.5
99	27600	47.5	41.0	4.5	7.0
201	28800	30.1	61.5	5.0	3.4
207	26680	45.0	40.0	13.0	2.0
5 cases Average	26836	39.0%	43.2%	15.9%	3.8%

## Over 30000

63	39300	58.0%	29.0%	9.0%	4.0%
82	43680	61.0	23.0	11.5	4.5
95	46000	33.0	55.0	10.0	2.0
96	31300	28.0	50.0	18.0	7.0
97	31200	71.0	18.5	5.0	5.5
220	33400	64.7	26.4	7.7	1.2
6 cases Average	37460	52.6%	33.6%	10.2%	4.0%

The cases showing the lowest leukocyte count at the beginning of the child's coughing, were the ones soonest well of the disease, except in case 52 which held out as long as any, while case 242 had a recurrence with a count very similar to the one listed.

The only fatal cases in the 120 directly attributable to whooping cough were the ones (five in number) showing the highest leukocytosis; case 97 coming so near dying, after losing 3 lb. 4 oz. in weight, as to practically confirm the supposition that the higher the leukocyte count at the start the more likely fatal will be the outcome. Four of the five fatal cases were caused by pneumonia complicating the pertussis; the fifth death resulting from gastro-enteritis.

To summarize, all of the 120 cases showed a leukocytosis, with a marked increase in the lymphocytes.

Those cases having a low white count, show a much higher relative lymphocytosis, with a marked decrease in the polymorphonuclears; while these cases have apparently a much lighter attack, than do the cases showing a high leukocytosis, with an increase in polymorphonuclears and a decrease in the lymphocytes, in which latter case the disease seemingly nearly always proves fatal.

In 120 of the cases examined a diagnosis of pertussis was made from the leuko-lymphocytosis; and in every case was confirmed by the clinical symptoms, in from ten days to two weeks.

## REFERENCES.

1. Frolick: Jahrbuch f. Kinderheilk., 1897, XLIV, 59.
2. Mennier: Comp. Rend. Soc. de biol., 1898, L, 103.
3. De Amici and Paccioni: Clin. Med. Ital., 1899, XXXIV.
4. Stengel and White: U. of P. Med. Bul., 52, 1902, XIV, 318.
5. Wanstall: American Medicine, 1903, V, 62.
6. Cabot: Clinical Exam. of the Blood.
7. Maggia and Bertolotti: Riv. de Clin. Ped., Feb., 1905.
8. Giulee and Phemister: Archiv. Ped., N. Y., 1905, XXII, 595.
9. Stevens: Lancet, 1902, II, 791.
10. Churchill: Jour. A. M. A., 1906, XLVI, 1506.
11. Barach: Archiv. Int. Med., July, 1908.
12. Crombie: Archiv. Int. Med., July, 1909.
13. Kolmer: Archiv. Int. Med., July, 1909.

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## Report of a Case of Probable Abscess of the Larynx, Requiring Intubation, Followed by Inspiration Pneumonia.

By J. J. THOMAS, M. D., Cleveland.

Late in the evening of March 3, 1911, I was called to see Martha S., aged 3½ years, who appeared to be suffering from a moderately severe attack of spasmodic laryngitis. She had been well until noon of the same day, when she began to cough, the latter having the peculiar brazen character of spasmodic croup. This was attributed to exposure on the previous day. The temperature and pulse were normal and the physical examination negative, the condition of the pharynx being especially noted and found normal.

The family history was negative, likewise the personal history, excepting two attacks of rather severe spasmodic croup during the previous year.

The usual remedies were prescribed and gave some relief, although the patient passed a bad night. The next morning there still remained a noticeable inspiratory dyspnea, expiration being unimpeded, but the voice was clear, and this condition persisted during the day, with slight fever. After a restless night, on the morning of March 17, moderate expiratory with increasing inspiratory dyspnea appeared. At this time the axillary temperature was 100° F., pulse 112. During the day, the various remedies usually relied upon for the relief of croup, including emetics, were tried, with no relief. The patient's condition remained satisfactory, no cyanosis having appeared in spite of the dyspnea. At 8 p. m. March 17, Dr. J. M. Ingersoll saw the child with me and agreed in the diagnosis.

Laryngeal diphtheria, of course, was carefully considered, but excluded, on account of the clear voice, the slow progress of the dyspnea and the normal pharynx. The temperature at this time was 101°, pulse 120.

During the night the temperature rose to 103°. The following morn-

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*Read before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, May 5, 1911.*



ing the dyspnea was decidedly worse, with marked cyanosis, and intubation seemed urgently indicated. The child refused now to swallow, evidently from the pain resulting from the act, and continually pushed its fingers as far as possible into the throat, as if attempting to extract something. While awaiting the arrival of Dr. Hoover of Warren, who had formerly been the family physician and had treated her during the two previous attacks of croup, I gave 2,000 units of diphtheria antitoxin, as a precautionary measure, and took a swab from the pharynx for culture. A careful examination of the chest was made, with negative results. On the arrival of Dr. Hoover, I performed intubation without difficulty, no abnormality about the larynx being detected by the guiding finger. On withdrawing this finger, however, the child coughed out about a teaspoonful of dark yellow material, which appeared to be pus and proved to be so under the microscope. This was caught on a towel fortunately, and was taken to the city laboratory where a culture was made directly from the material. In addition to the pus, several hard pieces of dried mucus were coughed out.

No diphtheria bacilli were found in the culture from the pharynx or in the pus, but in the latter a large number of staphylococci and streptococci were present.

Immediate relief of the dyspnea followed the intubation and the child seemed decidedly better. In the evening, however, as the temperature was 102°, pulse 120 and respirations 40, another examination of the lungs was made and a slight dulness was detected at the right apex. Auscultation was unsatisfactory, as coarse rales could be heard over the entire lung area, but no bronchial breathing was heard. The child passed a very bad night, the temperature reaching 104°, pulse 170, and respirations 70 at one time. The next morning, the suspicion of pneumonia became a certainty, although the diagnosis rested on the clinical symptoms rather than on the physical signs. The following day an area of consolidation about the size of a dollar, with bronchial breathing, was found in the lower right lobe posteriorly. Dulness at the apex gradually disappeared. The progress was uneventful until the afternoon of March 22. As the intubation tube had been in the larynx four days, it seemed advisable to extubate, both on account of the danger of ulceration and because it seemed that the tube must have accomplished its purpose and there was no further need for it. The operation was undertaken with the greatest dread, as we feared that the additional strain thrown upon the heart might prove fatal. As a precaution, 1/400 gr. atropin sulphate was given hypodermically shortly before extubating and the tube was extracted with the patient flat on the back. On account of the unaccustomed position, two attempts were necessary and our fears nearly proved justified. However, the child quickly rallied and in a few moments was breathing quietly and easily. She subsequently had several slight periods of dyspnea and one short but nearly fatal one on the afternoon of March 25. The larynx apparently became clogged with sticky mucus and the resulting dyspnea caused such terror to the child that she nearly strangled. Prompt action on the part of the nurse fortunately averted a catastrophe.

The pneumonia ran a rather peculiar course. Early in the morning of the tenth day the temperature was  $98^{\circ}$ , a sudden fall from  $104^{\circ}$  at noon of the previous day, a typical crisis. At noon of the tenth day the temperature rose to  $102^{\circ}$  then fell to  $99\frac{3}{5}^{\circ}$  at midnight. A rapid rise then occurred to  $105\frac{1}{5}^{\circ}$  at noon of the eleventh day. The physical signs indicated at this time that the lungs were becoming involved in a general septic infection, and Dr. L. W. Ladd was requested to make a blood culture in the hope that a vaccine might be manufactured. The blood obtained proved, however, to be entirely sterile, as was forecasted on the following day, when the temperature dropped to nearly normal and the child seemed almost well. Further progress was uneventful. The child could not make a sound above a whisper for more than two weeks after the tube was extracted, then gradually regained the use of her vocal chords and at the present time has a normal, clear voice. A swab from the pharynx taken March 30 was reported by O. T. Schultz to show a pure culture of staphylococci.

The points which I think are of interest in this case are, the difficulty in making the diagnosis, which still is not clear; second, the rapid onset of the pneumonia, presumably from aspiration of pus from the larynx; third, the necessity of extubating with the patient desperately ill with pneumonia, with the possibility of a reintubation being required; fourth, the peculiar course of the pneumonia; and fifth, the prolonged loss of the function of the vocal chords. Not the least interesting feature in the case was the enormous vitality exhibited by the frail body of the three and one-half year old child.

*IIIO Euclid.*

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### **An Interesting Case of Major Hysteria, Successfully Treated by Reeducation.**

By H. H. DRYSDALE, M. D., Cleveland.

The subject of hysteria has been a fruitful topic for discussion in recent years, due to the investigative attention it has received in the realm of medico-psychology. From this source our knowledge of the condition has greatly increased, and today we have a broader insight into its true nature, etiology and treatment. We are, therefore, able to promptly recognize cases which formerly have been overlooked or otherwise classified.

The case to be reported should prove of interest on account

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*Read before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, May 5, 1911.*



of the unusual combination of somatic phenomena appearing in one patient, i. e., hysterical paraplegia, multiple contractures, hemianesthesia, hyperesthetic zones, amblyopia, dyschromatopsia, unilateral anosmia and ageusia, bradylalia, amnesia, contraction of the psychic functions, etc.

Conditions of so pronounced a type as this, while reported comparatively frequently in European, especially French literature, are rarely met with in the practice of American physicians.

I saw this patient first on January 8, 1911, in consultation with her physician, Dr. M. P. Kellum, of Royalton, Ohio. The following particulars were obtained:

She is 15 years of age and was born and has lived practically all of her life in the country.

*Family History:* Her father died in February, 1906, of lues contracted after her birth. Her mother is living and although sparsely built is in fairly good health. The patient has one sister and three brothers, all of whom are living and well. Her maternal grandfather committed suicide at the age of 39. He was insane. Her maternal grandmother died at the age of 28 of pulmonary tuberculosis. Her paternal grandfather died at the age of 60 of valvular heart disease. Her paternal grandmother is living and robust. In collateral branches of the family there are unmistakable indications of neuropathia and psychopathia.

*Personal History:* As a child this little girl was nervous, timid and hypersensitive but she possessed a gentle and affable disposition. There was nothing notable to be observed in her case until she was six years old. Her intellectual development, her tendencies and character during childhood, disclose no special items of interest.

At the age of six she started school and her teachers considered her bright and mentally alert. She progressed regularly each year and had a good percentage.

It is essential to bring out, at this point, the fact that, when a little girl, her paternal grandparents were in the habit of reading blood-thrilling detective stories and tales about ghosts to her, and that she had frequently gone to bed so frightened that she could not sleep. These unthinking people were also fond of indulging in other vicious practices and little did they know what incalculable injury they were inflicting on this young patient's delicate mentality. For example, they described tramp-life in all its gruesomeness and told how such persons lived in empty

houses, barns and deserted straw stacks. For years this over-impressionable girl was kept in a pitiable state of timidity and agitation, as subsequent events adequately show.

When she was nine years old it was her duty each night to walk to her paternal grandparents' home, one and a half miles distant, for the family supply of milk. On these journeys it was necessary for her to pass an empty farm house with a dilapidated barn and straw stack adjoining. When the nights were dark she would be almost beside herself with terror as she approached and passed this lonely, dismal spot. Frequently she would dash by in fear of her life, not daring to look to the right or the left. Her description of the feelings that possessed her at these times was almost uncanny. On one occasion she arrived home so horror-stricken that she fell prostrate on the bed, pulled the clothes over her head and made her mother promise that she would not let her close her eyes for fear the tramps and ghosts might get her.

Lula was the oldest child and as the family was poor, it devolved upon her to help in the care of their little home in the country. Few conveniences were at hand and much had to be done each day. Indeed, it may be said that her daily routine consisted of arising early each morning to do the family chores; walking a considerable distance to the village school; hurrying home again; assisting in the preparation of the evening meal; studying her lessons for the next day and going to bed. It was all work and no play for this little girl from the moment she was able to be useful. Frequently the mother went out to work by the day, returning late at night, and during her absence Lula had charge of the children and the home, besides having her school lessons to look after. The responsibility which was thrown upon this young girl's shoulders was surely a heavy one and it is not surprising that her unstable nervous system faltered under the enormous strain to which it was subjected.

In 1905 she began to exhibit definite signs of intense nervousness and defective control. Her nights were sleepless and she was continually harassed by tormenting doubts and fears.

Finally, in January, 1906, her slumbering hysteria came to the surface and she was stricken by what her mother termed a "fainting spell," which lasted 20 minutes after which she was delirious for at least 15 hours. Her muscles twitched, her body was rigid and she apparently was unconscious. She gradually



recovered but was somewhat confused. From this time on her household duties increased as the father became seriously ill, and required constant care and attention. In two weeks she again suffered a "break down" as the result of the strain. This was a very mild affair and of short duration. After it had fully subsided she complained of numbness on the left side of the body and also of defective vision.

On February 2, 1906, the father died and when she saw his face in death she was almost overcome. For some unknown reason this experience must have left an indelible impression upon her emotional nature, as her father's face incessantly haunts her. She sees it while she sleeps and the very mention of it makes her tremulous and fearful.

On an average of once in two weeks these disturbances returned. Some of them were rather severe, but most of them were mild and inconsequential. Sometimes she would call out before she fell (hysterical aura) and she invariably had some idea of what had occurred during the attack, but she never bit her tongue or injured herself. Her recovery was always fairly prompt and although handicapped by haziness of thought for some little time afterwards, she managed to attend to her manifold duties and keep up with her class in school. In April, 1906, she consulted an optician who was unable to account for her failing vision. He finally dismissed her with the vicious suggestion that she eventually would lose her eyesight.

By this time the mother reached the conclusion that her daughter was afflicted with epilepsy, an incurable disease, and she found several physicians who entertained the same opinion.

In May, 1906, the family moved to an adjoining township and the dreaded visits to the paternal grandparents' home fortunately came to an end. A gradual improvement in her health followed and she was practically free from attacks until September, 1908. On this date she went to Newark, Ohio, to do housework and attend school. She was there three months and during this period suffered but two very light spells.

While in Newark her menstrual function first appeared. It was accompanied by severe pain and scanty flow. It has always been irregular, occasionally being suppressed for as long as 14 weeks. When this function did not appear at the proper time she suffered intense cramp-like pains in the hypogastric region. This made her extremely nervous and depressed, but did not

seem to have any direct bearing on the recurrences of the attacks.

On Christmas eve, 1908, she returned to her mother's home and during the winter her health was all that could be desired. She worked hard each day and was busy at school. During 1909 she was janitress of the village school-house and it was her custom to remain after hours and do the sweeping. It had been rumored about the neighborhood that an insane man had escaped from the county infirmary and was wandering about the country roads. As she walked to and from her home each day the thought that she might encounter this man was vividly before her. In October, while busy sweeping the school-room, she unexpectedly saw him standing in the doorway. He was wild looking, she said, and acted strangely. Immediately she rushed out of the back door and hid in an outhouse. When the opportunity came she ran into a nearby orchard and reached home by a circuitous route. In her judgment this was the worst fright she ever received.

After this experience she became very nervous and sleepless for a while but her previous two years of good health seemed to fortify her against recurrences of the attacks. She continued feeling well with the exception of her defective vision, until July, 1910, when she again showed signs of fatigue, irritability and restlessness. Then she had two very severe seizures in rapid succession and was confined to her bed for a week. The decline of these attacks was tediously slow; it was difficult for her to concentrate her thoughts; her memory was unfaithful and her body trembled. She grew worse and worse, recurrences became more frequent and on Sunday, November 27, 1910, she suddenly fell to the floor in a severe clonic convulsion. During the seizure, which lasted several hours, she assumed complicated postures, would wring her hands and mumble indistinct words. In a few days this condition partly subsided but left her extremely emotional and lethargic. Everything seemed to irritate her and she could not rest. She gave up school (being in the eighth grade) and was so completely exhausted that she could barely get about.

On December 29, 1910, she went to bed feeling badly. Told her mother to watch her and not let her close her eyes. She was in great fear. At eight o'clock she fell asleep but tossed all night and seemed delirious. In the morning (Sunday, January 1, 1911) she appeared stupefied and could not speak or see. She



remained in this state during the day but slept part of the night. On Monday morning she was a little brighter but still could not talk. She drank a glass of water when told to and accepted liquid nourishment. During the day they succeeded in getting her out of bed but being unable to stand alone she fell to the floor. Her condition throughout the week remained unchanged except that on one occasion she mentioned her brother's name.

On Sunday, January 8, 1911, I called to see her.

*Examination:* We found her sitting in a chair. Both lower



Fig. 1. Photograph taken January 23, 1911, five days after admission to hospital, showing contractures of toes, ankles, wrists, elbow, shoulders and left knee, the contracture of the right knee having somewhat subsided.

extremities were intensely contracted in extension, while both feet were hyperextended in an equinus position. The four small toes of each foot were strongly flexed while both large toes were

overextended. This phenomenon presented the characteristics of the Babinsky toe response and in view of the fact that the plantar reflex was suppressed at the time, made the condition temporarily deceptive.

Both upper extremities were rigidly flexed in all joints but it was more pronounced on the left side. The thumb, first and second fingers of the left hand were extended and stiff while the remaining two fingers were tightly flexed; the tips of the finger nails being imbedded in the flesh of the palm of the hand. In the



Fig. 2. Photograph taken January 25, 1911, showing slight improvement of contractures of the upper extremities.

other hand, the thumb and first finger were extended and the other three fingers were flexed in the same manner as on the opposite side.

To summarize, I might say that in this patient all the joints



except the hips, spine and jaws were immobile when they were first examined.

The bizarre appearance of her deformity and stereotyped pose, together with the fact that the contractures did not lessen when the point of origin and insertion of the paralyzed muscles were approximated and that their electric excitability was normal was sufficient indeed to establish the diagnosis.

Gait: She could not, by herself, get out of the chair. Her contracted arms were suspended in the air as were also her rigid lower limbs. She endeavored to arise by exerting the muscles of her back but was unsuccessful. We assisted her to her feet and there was pronounced bodily swaying, but she did not fall. When standing alone she rested on the heels and the outer borders of the soles of the feet. Her trunk was bent forward. With a person assisting her on either side she was encouraged to walk. She lifted her right leg suddenly, all in one piece so to speak, to a height of at least 60.0 cm., using only her hip joint. Impulsively she brought this member to the floor with considerable force. With the other limb she repeated the same procedure. Her steps might be compared to those of a person walking on stilts. No indication of ataxia or muscular incoordination was elicited. All of this time she was in a profuse perspiration (hyperidrosis) and to avoid overfatigue further movements were discontinued.

The cutaneous surface of the left side of the body, excluding the hairy scalp was anesthetic (hemianesthesia) and this sense perversion, so far as I could determine, was sharply limited anteriorly to the median line. Posteriorly its outlines were more or less irregular and did not extend to the spinal column except in the dorsal region. She could not feel the faradic brush or the prick of a sterilized needle over this area (analgesia) and when the needle was slowly inserted into the deeper structures and moved to and fro, no pain was complained of and the wounds did not bleed. This disturbance also involved the temperature sense (thermoanesthesia), kinesthetic sense and the vibratory sense.

On the right side of the body deep and superficial sensibility was moderately well preserved in all of its qualities with the exception of five hyperesthetic islets. These were distributed as follows: The right axilla, right breast, directly below McBurney's point, the lower third of the anterior surface of the thigh and the middle portion of the outer surface of the right calf (see

diagram). The first four of these areas were round and almost equal in diameter (5 cm.) The spot directly below McBurney's point was distinctly elliptical in shape (6.2 cm. x 2.5 cm.) and pressure exerted over this area while not provoking an hysterical paroxysm, excited movements of repulsion and induced irritabil-

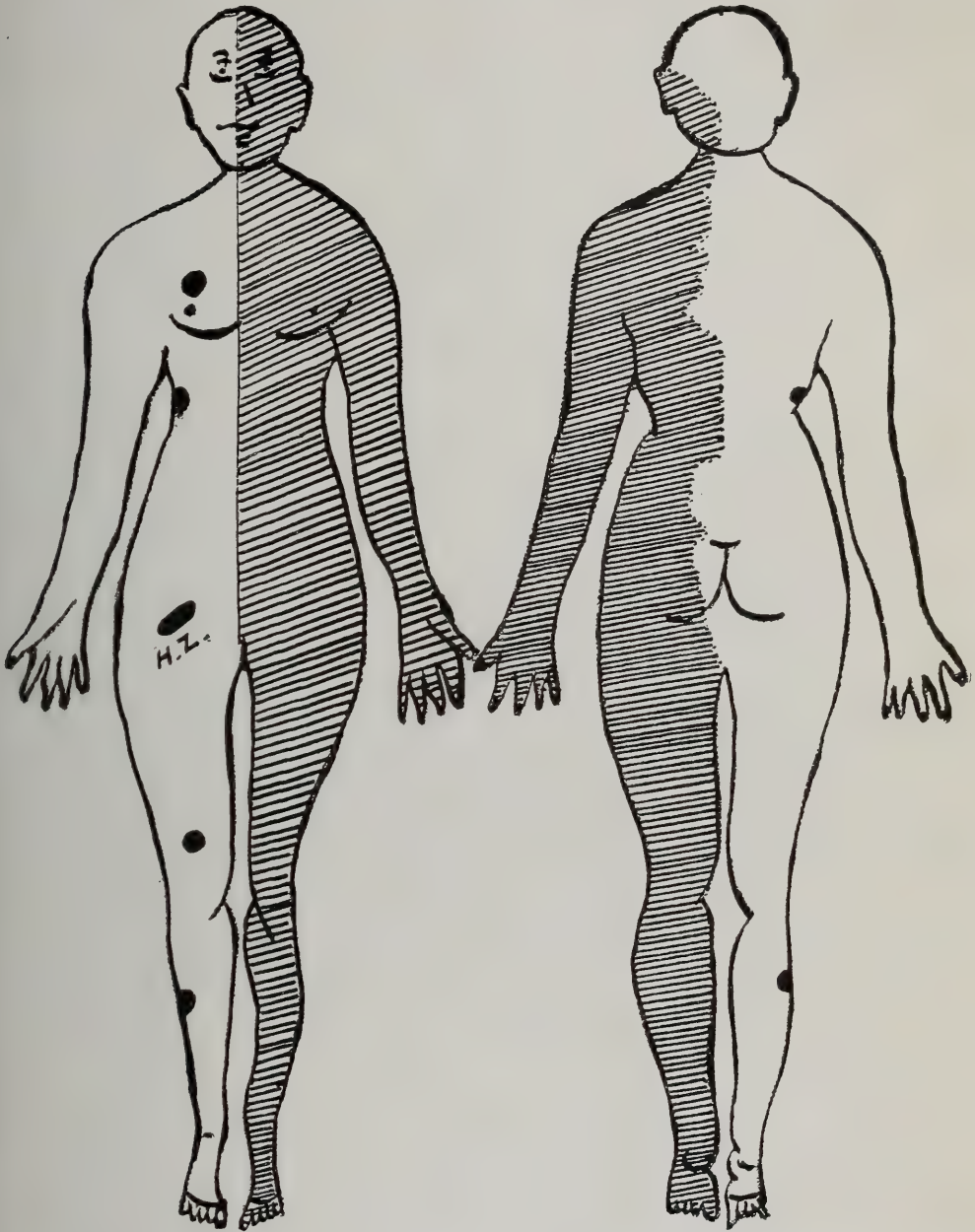


Fig. 3. Diagrammatic representation of the sensory changes. The shaded areas—hemianesthesia; the circular spots—hyperesthetic islets; H. Z.—hysterogenetic zone.

ity, discomfort and unrest (hysterogenetic zone). All of these anomalies were sharply demarcated and exceedingly sensitive to touch, in fact painful.



Repeated studies of the cutaneous sensibility in this patient failed to reveal any other alterations. It might be intimated, however, that the psychogenetic origin of these hyperesthetic zones was easy of demonstration as they could be freely moved about through the application of cold silver coins (refrigeration).

The sense of hearing, as I hertofore intimated, was to all appearances normal in both ears, at least for notes of medium range. Bone transmission at first seemed to be impaired but aerial conduction was entirely satisfactory.

The sense of taste was benumbed on the left side. Solutions of sugar, vinegar, salt and quinin were applied by means of a pipette and none of these could be tasted or differentiated. On the right side this function, while undoubtedly impaired, was not altogether lost as she could distinguish, though slowly, between sweet, sour, salty and bitter (unilateral hysterical ageusia. The tongue itself showed no atrophic or hypertrophic changes and it did not deviate from the median line. The palate, pharyngeal and retching reflexes were functionally abolished.

The sense of smell: The application of pledgets of cotton to the inner surface of the entire left nasal cavity excited no reaction. Neither could she detect the odors of chloroform, amyl nitrite or oil of peppermint on this side. In the right nose there was instant sneezing when the inner surface was tickled and she was competent to differentiate the odors of chloroform and strong ammonia, both of which were repugnant to her. In fact, she displayed her disgust by contracting this nostril and retracting her head (unilateral hysterical anosmia).

To further emphasize the intensity of the psychic loss of feeling which had attacked this young girl it is well to state that during the 36 hours previous to my first visit she voided only three ounces of urine (oliguria). She was also obstinately constipated.

The pupils I found to be round, equal but widely dilated. Both reacted quickly to light and distance. The left corneal reflex was exceedingly sluggish if not abolished. Vision was markedly impaired and she seemed to prefer the right eye. Muscle balance was well preserved. The degree of contraction of the visual fields (anesthesia of the retina), could not be ascertained accurately.

Vasomotor changes: Both hands and feet were livid, cold and clammy. There was also some swelling of the feet but this did not pit on pressure.

Trophic changes: This little patient was well nourished and well developed physically. Her muscular system showed no evidence of atrophy or hypertrophy. She was five feet one inch in height and weighed 124 pounds.

Her internal organs were apparently free from disease. The heart was in good condition but the pulse rate was low, 54 beats per minute. Blood pressure, 110 mm. of mercury in each arm. Both lungs were clear; respiration full and unembarrassed. An examination of a sample of the urine, which was highly concentrated, was otherwise negative.

Mentally she presented what Janet aptly terms "contraction of the conscious field." The entire picture was that of a dream-like confusion and all her psychic functions were more or less anesthetic. Her facial expression was one of sadness, dejection and despair. She undoubtedly could hear but had difficulty in articulating. It took her almost a minute to pronounce her first name "Lula," and the process evoked considerable effort (hysterical bradylalia). I requested her to repeat certain numbers and this she was able to do in an impulsive manner. For instance, I directed her to pronounce the number "four" and she instantly arranged her facial musculature for the execution of the act. After a continued effort of at least five seconds she suddenly blurted out the word. In reply to all of my interrogations I secured nothing but monosyllables, but just as I was leaving and after I had assured her that she would certainly recover she gleefully exclaimed "man-says-well." The psychological investigation showed that the elementary processes of the mind-perception, attention, ideation and memory, were poor and flaccid. She did not seem to know the year, month, day of the week, her age, etc., (hysterical amnesia) and she was disorientated in other respects.

It was also apparent that this girl was exceedingly impressionable as she tried with difficulty to obey commands and follow out suggestions. Under the influence of innocent placebos locally applied, I was able to reduce the contractures of her ankles, knees and elbows, and in this way I obtained an excellent opportunity to study the character of the patellar, tendo Achillis and triceps reflexes, all of which were promptly responsive. Hardly had I secured this important information than the contractures were as firmly fixed as ever (hysterical contractures).

During this interview the variability of her moods and affective tone was particularly noticeable. Without any apparent



external cause she would pass from happiness to sadness, from laughing to weeping, from love to hatred and from timidity to temerity.

Nothing in the way of anthropological stigmata was observed in this case.

On January 18, 1911, this patient was admitted to St. Luke's Hospital, Cleveland, Ohio.

During the ten days that had elapsed since the first examination little, if any, change had occurred in her condition and all the heretofore mentioned symptoms were still in evidence. She could not walk and her speech impairment was as pronounced as ever.

A system of reeducation was immediately introduced. Each contracture was released each day through the psychic effect of local applications and firm commands. She was assisted to her feet daily and a system of exercises not unlike Frankel's method was practised to reteach her to walk. She was also urged to repeat certain short words and numbers. Care, of course, was taken to avoid fatigue.

During the first night in the hospital the nurses were directed to watch her and in the morning they reported that while the patient slept all muscular rigidity and contractures entirely subsided. This, as we all know, is characteristic of the affection.

Unfortunately the days were dark and the staff photographer failed to secure satisfactory negatives until January 23, 1911 (five days after her admission). I am therefore unable to present a picture of her condition when it was at its worst.

January 25, 1911. Patient has fully regained the use of her hands and arms, is able to get out of bed and with slight assistance can take a few irregular steps. Her responses to interrogations are now quite prompt and sensation is returning in her left side. Bowels are still constipated but kidneys are active and appetite capricious. Stimulating saline baths and rubs have apparently proved useful therapeutic adjuncts.

February 3, 1911. Patient is greatly improved and it is remarkable how suggestible she has been. All contractures have subsided leaving only slight rigidity in the lower limbs. It was noted that when patient is a little tired the arms have a tendency to return to their former contracted positions. She is now out of bed all day long, is able to dress herself, though clumsily, and walks up and down the hospital corridor, ad libitum. Her ca-

capacity of association has been restored and she can now form and express sentences. In fact, her personality is almost completely reintegrated and she related in due order and with proper connection all the principal episodes of her life. The unilateral disturbances of taste and smell perception have been corrected. Says she would be well if she could use her eyes but the eye-man told her that she would gradually lose her sight.



Fig 4. Photograph taken February 18, 1911. Patient entirely free from all symptoms.



February 8, 1911. She was referred to Dr. Leo Wolfenstein for ophthalmological examination. His findings are as follows

"Patient complains of poor vision of both eyes, especially the left.

"History: States that her vision has been poor for years. Had glasses from various opticians and doctors which did not improve her vision. Now has a pair of glasses  $+1.25$  sphr., each eye, but does not wear them. The last man who examined her eyes told her that the vision of the left eye was failing and the eye would eventually become blind. Since then (over a year ago) the sight of this eye has deteriorated markedly.

"Examination: Exterior of eyes normal. Binocular fixation. Pupils moderately dilated but regular, round and react promptly to light, both directly and consensually, also to distance. Fundus negative. Media clear. Vision R.E. 6/24. L.E. Fingers at 1 meter. At  $1/3$  meter she reads with R.E. J-12, with L. E. J-19. In attempting to read smaller print she holds her book close to the right eye and turns her head to the left side. She turns her head in the same manner in looking at anyone. Shadow test under a mydriatic gives the refraction of each eye  $+1.00$  sphr. Patient was then told that she would be given a powerful lens with which she would see very distinctly. Thereupon with  $+1.00$  sphr., her vision was R.E. 6/9, L.E. 6/12. On February 13, 1911, after the effects of the mydriatic had passed, her vision after similar suggestions was also 6/9 and 6/12, with  $+.50$  sphr. Muscle balance was almost perfect. She was ordered  $+.50$  sphr. glasses and the suggestion given that her sight would continue to improve.

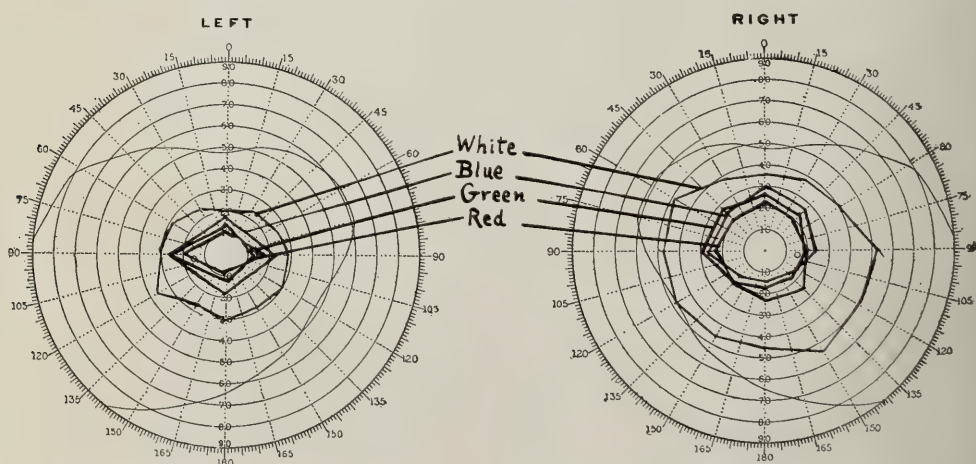


Fig. 5. Perimeter chart showing moderate contraction of right form field; marked contraction of left form field; interlacing of color fields of right eye; inversion of color fields of left eye.

“Form fields moderately contracted in R.E., markedly in L.E. Color fields contracted and inverted in both eyes and interlace in L.E. (see Fig. 5).

"Diagnosis: Hysterical amblyopia with dyschromatopsia."

February 11, 1911. Patient left the hospital to complete her convalescence at the home of friends in Cleveland.

February 14, 1911. She reported at the office feeling well. All deep and superficial reflexes are active. The hemianesthesia has disappeared and the hyperesthetic zones are barely discernible. She walks correctly and has good control of all movements. Her eyesight, she asserts, is now normal and she can read for an hour without tiring. Her expression is one of joy and happiness.

February 23, 1911. Patient left for her home apparently well and completely free from all symptoms.

April 20, 1911. Patient returned to the city. Examination by Dr. L. Wolfenstein:

“Pupils average size, react promptly. Vision R.E. 6/6; L.E. 6/6. Reads J-1 readily. This vision is the same with or without glasses. All fields are contracted concentrically, about equally in both eyes, but contraction is less marked especially in the left eye. The dyschromatopsia has disappeared (see Fig. 6).”

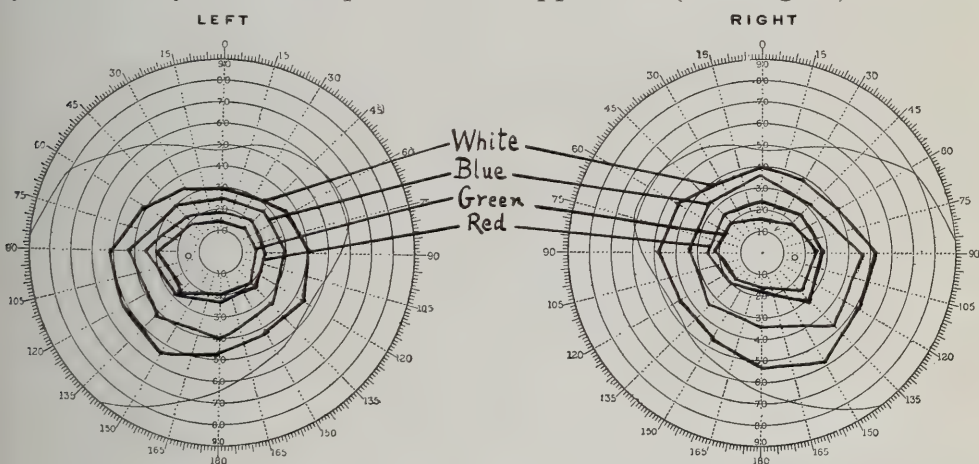


Fig. 6. Perimeter chart showing all fields moderately contracted, about equally in both eyes. No dyschromatopsia.

The question now arises: Is this patient cured? Certainly all symptoms, physical and mental, have subsided. On the other hand, there is a marked psychopathic weakness in this girl's inheritance. Hysteria continues to exist in her constitution. The visual fields are still moderately contracted. I believe, however, in the face of these facts, that if this abnormally emotional girl can, in the future, be surrounded with healthful and wholesome



suggestions, a recurrence may be avoided. She has been the victim of a faulty environment and if this can be corrected I see no reason why her recovery will not be complete.

While it may seem that the element of fright was the sole factor in precipitating this distressing condition, a psychoanalysis is necessary to trace the relation existing between the psychic trauma (fright) and the individual hysterical symptoms. Until this is done the patient will not be dismissed.

846 Rose Bldg.

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## **A Study of the Circulation after the Forcible Reduction of Congenital Club-Foot.**

Introduction; Practical and Anatomical Considerations.

By WALTER G. STERN, M. D., Orthopedic Surgeon to Mt. Sinai Hospital, Fellow of the American Orthopedic Association, etc., Cleveland.

The modern treatment of congenital club foot has been crystallized into the procedure of forcibly correcting the deformity and fixing the foot in the position of extreme overcorrection by means of a plaster cast. The chief obstacle to success in this operation comes from the interference with the circulation of the foot and toes, as evidenced by immediate cyanosis or blanching of the toes and the blanching of the skin on the dorsum of the foot, with subsequent necrosis of the skin over this area. All authorities agree as to the frequency of the occurrence of these untoward phenomena but offer no adequate explanation for them. The majority contend that the interference with the circulation is always caused by pressure from the plaster cast or the cotton padding and bandage beneath. Some would always cut away the dorsum of the cast on this account, while others would leave in on for only 24 to 48 hours and then use splints, braces or adhesive bandages to continue the fixation. They are all in accord that such interference with the circulation must be avoided at all hazard. The last word on this subject from the late lamented Hoffa of Berlin, published shortly before his death, is to the effect that the cyanosis of the toes—when not due to technical blunder, i.e., direct pressure from an ill fitting cast—can be explained by the interference with the return circulation caused by the wrinkling up of the redundant skin on the dorsum

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*Read before the Experimental Section of the Academy of Medicine of Cleveland, March 10, 1911.*

of the foot at the time of the overcorrection of the deformity.

In the Orthopedische Ambulatorium, in Vienna, where the writer served his orthopedic apprenticeship, after the usual forcible correction a plaster cast was applied. The latter was then cut away over the entire dorsum of the foot from the middle of the leg to the toes, leaving the skin bare. Despite this precaution one often noticed the toes cyanotic—at times white—and what was even more frequent, a white anemic patch of skin on the dorsum of the foot which was often followed by a sloughing of the skin over this area if the anemia of the parts was not abated. This condition could not be caused by direct pressure from the cast or bandages as these had been cut away. The condition could, however, be instantly relieved by lessening the amount of overcorrection and by allowing the foot to return, to a greater or lesser degree, towards the deformed position. It was therefore evident that the interference with the circulation (not due to faults in operative technic) was due to the forced position of the foot in extreme overcorrection.

The successful manual reduction of a club foot changes the shape of the foot from an arc with its convexity on the dorsum to an arc with its concavity in the same place. To produce this one of the following three rearrangements of the tissues must take place:

1. With a point on the dorsum as a center, say the cuboid, the inner edge of the foot and sole must be bent outward and stretched or torn after the manner of the Phelps operation.

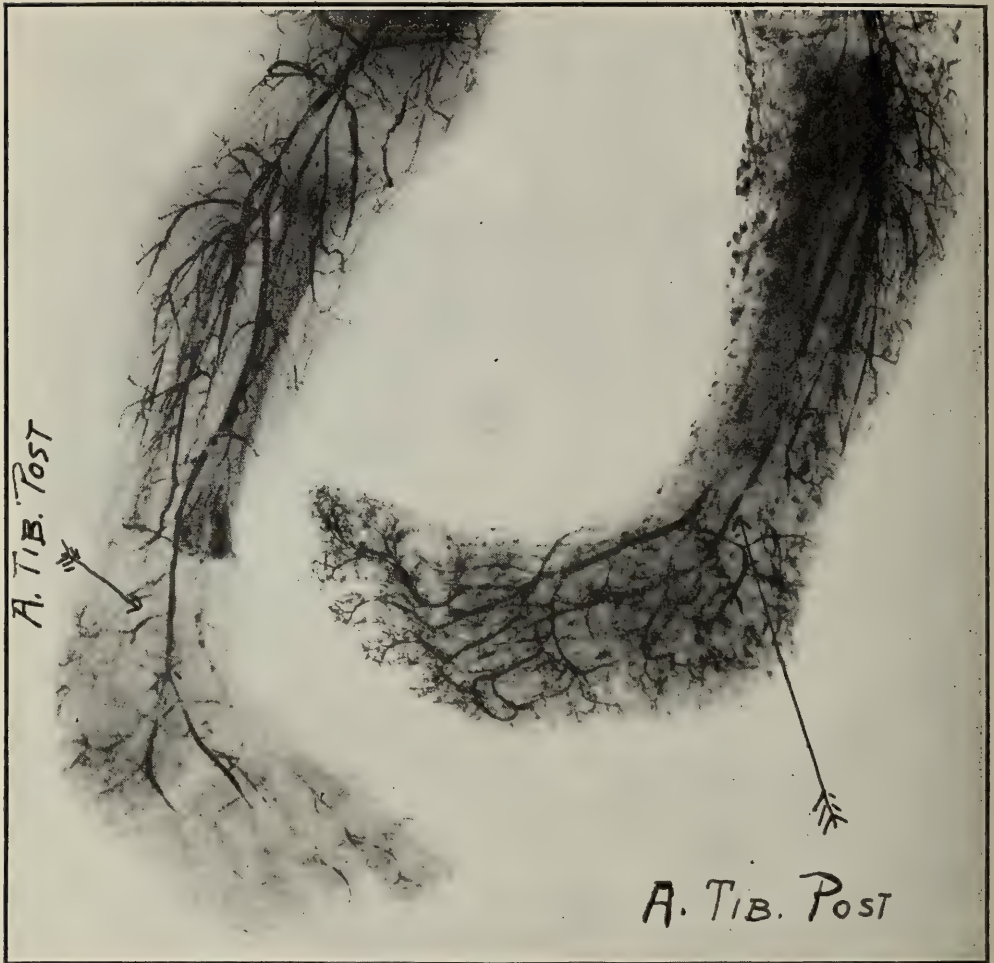
2. With the canthus of the inner edge of the sole as a center, the tissues of the dorsum must be compressed enough to make the arc of the dorsum one with its convexity inward and of lesser radius than the arc of the inner edge of the sole which was previously the smaller.

3. Both of the processes must take place at the same time.

This last is what really does take place; but as anything like a very forcible stretching of the contracted inner edge of the sole often leads to a tearing of the tissues and skin in the angle (Phelps), the compression of the dorsum must be the principal movement. The success of the Ogsten operation for club-foot (the scooping out of the ossified centers of all the bones of the tarsus) depends upon the fact that this compression is the chief factor in the reduction, since the scooping out of the centers of the tarsal bones, by giving more room, simply makes the com-



pression of the tissues easier. In the ordinary club-foot the tissues of the dorsum are already wrinkled and redundant, and when to the above mentioned compression of the dorsum is added



compression from the dorsal flexion of the joint, the pressure of the crowded and folded skin and subcutaneous tissues could easily be great enough to occlude the lumen of the arteries and veins, causing blanching of the skin of the dorsum and interference with the circulation of the toes.

#### Experimental Inquiry.

To test the correctness of this hypothesis a series of experiments were planned, but the lack of suitable material limited the anatomic experiments to only two. Through the kindness of the late Dr. Scholl, at that time first assistant to the Ambulatorium, we were able to collaborate in the injection experiments upon the cadaver of a two months old child with double club-

foot. One foot was overcorrected and fixed in a cast with the dorsum cut out in the manner before mentioned, and then the vena cava and aorta were injected downward into the legs with different colored plaster mixtures. Careful dissection showed the smaller veins and arteries of the dorsum of the operated foot to be much less fully and completely injected than those of the other foot.

In 1905 I was fortunate enough to obtain the cadaver of a child with double club-foot of moderate degree while the body was still warm. Both feet were immediately subjected to a modelling redressment and the right foot was then covered with a layer of cotton wadding and a flannel bandage and fixed in a plaster cast in an extreme position of overcorrection. As soon as the plaster had hardened the entire dorsum of the cast was cut away, from the knee to the toes, and the vessels injected downward with mercury ointment, rendering fluid with turpentine previously saturated with mercury. The cast was then removed and both limbs radiographed. Five years later a stereoscopic radiograph of the specimen was made for me by W. I. LeFevre. Despite the fact that the nutrient artery of the right tibia is most beautifully injected, the injection into the entire right leg is not as full as that on the left; the blood vessels of the right foot are however distinctly emptier than the left and are in marked contrast to the rest of the right extremity. The only vessel which remains patent is the posterior tibial artery while the dorsalis pedis and the superficial veins of the dorsum seem almost obliterated. That these vessels were slightly pervious is shown by the better injection of both the dorsal and plantar surfaces of the big and second toes.

Observations on the blood pressure were also made upon living subjects at the time of operation, by means of the finger-nail sphygmomanometer of Bethune Stein. A small, but heavy, circular glass plate ( $\frac{3}{8}$  inch in diameter) was fastened to the stylus of the instrument so that a larger area of skin could be studied. The blood pressure readings on various areas of the overcorrected and fixed foot were compared with those on the unfixed one; the absolute pressures were not considered. In almost every case the immediate findings showed the blood pressure of the tissues of the dorsum of the operated foot to be less than on the other side, while in cases in which the circulation of the toes was interfered with, the cyanotic toes gave a distinctly



higher blood pressure. In unilateral cases in which a comparison could be made after the operation was completed, it was noted that the blood pressure of the skin of the dorsum was again equal in both feet after the second day.

### Conclusions.

When not due to faulty technic in applying the plaster cast, which, with orthopedic surgeons at least, should be a rarity, a decubitus appearing on the dorsum of the foot or the blanching of the toes is due to a cutting off of the arterial supply of the area affected, and the cyanosis of the toes is due to a damming back of the venous return. Both of these untoward phenomena are caused by the compression of the soft tissues of the dorsum from the overcorrection. To relieve the condition, reduce the overcorrection and fix the foot in a less extreme position.

It therefore follows that the amount of overcorrection practicable at any one sitting is primarily dependent upon the circulation and is often considerably less than the maximum. For the best results in the correction of club-foot a maximum overcorrection must be secured. It is therefore often necessary, on account of the unavoidable circulatory disturbances, to abandon the single time operation and to repeat the correction at suitable intervals until the maximum overcorrection can be safely maintained.

*821 Schofield Bldg.*

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## A Study of the Chemical Condition of Lake Water After Chlorin Treatment.

By Howard D. Haskins, M. D., Assistant Professor of Organic and Bio-Chemistry, Western Reserve Medical College, and Sherrill A. Cleveland, Cleveland.

In a joint research on the sterilizing action of chlorin (in the form of bleaching powder solution) on lake water, recently reported to the Academy of Medicine\* and to the Cleveland Board of Health, R. G. Perkins and H. D. Haskins found a very high efficiency in relatively small dosage. They found that, when they added colon bacilli (700 or more per c.c.) to water containing antiseptically available chlorin in the proportion of 0.7 parts in one million parts of water, practically all the bacilli were killed within a few minutes, and none lived longer than

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\*See p. 491, May, 1911, and p. 539, June, 1911.

45 minutes. These results apply to water at a temperature of 10° C. or higher. After 45 minutes exposure of the water to the bleaching powder solution, no odor or taste is observable. With water at a low temperature the sterilizing action, while still very great, is not absolutely complete with the low proportion of chlorin mentioned above.

Since it had been previously shown that the typhoid bacillus manifests the same susceptibility to antiseptics as does the colon bacillus, recommendation was made to the Board of Health that, for the present, the entire water supply of the city be treated with bleaching powder solution, added in the proportion of 0.7 parts of available chlorin per million.

The suggestion having been accepted, it occurred to us that it would be of interest to make a chemical study of the water when treated daily with this proportion of chlorin. Some have supposed that the varying composition of the water, particularly with reference to its content of organic matter, calls for a variation in the proportion of chlorin added day by day. This is on the assumption that the part of the chlorin which is used by the organic matter has no antiseptic efficiency. The method of "oxygen consumption" was supposed to give an index of the relative amount of oxidizable organic matter.

We have found very wide variations in the oxygen consumption of lake water. During the experimental period reported below the following figures, in terms of milligrams of oxygen consumed by one liter of water, were obtained: 1.048, 1.092,

## CHLORIN CONSUMPTION.

Date	Parts Cl Per Million	After 1 hour at 20° C		After 2 hours at 20° C		After 3 hours at 20° C	
		Parts Cl Remaining	Percent Cl Consumed	Parts Cl Remaining	Percent Cl Consumed	Parts Cl Remaining	Percent Cl Consumed
June 6	0.751	0.158	79.0	0.075	89.4	0.000	100.0
" 7	0.763	0.139	81.8	0.114	86.4	0.077	88.6
" 8	0.794	0.138	82.6	0.086	89.1	0.069	91.3
" 9	0.707	0.138	80.4	0.104	85.7	0.069	90.3
" 10	0.710	0.179	76.2	0.135	81.0	0.085	88.1
" 12	0.731	0.146	81.4	0.085	88.3	0.000	100.0
" 13	0.704	0.134	81.0	0.067	90.5	0.000	100.0
" 14	0.683	0.146	78.6	0.081	88.1	0.000	100.0
" 15	0.648	0.130	80.0	0.065	90.0	0.033	95.0
" 16	0.756	0.158	79.2	0.095	87.5	0.047	93.7
" 17	0.722	0.126	82.6	0.099	89.1	0.047	93.5
" 19	0.779	0.175	77.5	0.095	87.6	0.095	87.6
" 20	0.760	0.174	77.1	0.095	87.5	0.000	100.0
" 21	0.760	0.127	83.3	0.094	87.5	0.000	100.0



1.169, 1.186, 1.359, 1.476, 1.509, 1.727, 1.834, 2.075, 2.124, 2.182, 2.212, and 2.388. The rate of consumption of available chlorin by the same samples of water was found, however, to be practically constant, as shown by the table below. In all tests of the chlorin consumption samples of one liter of water were kept at 20°C. for one, two, and three hours respectively. On one day only (June 16) did the water show distinct turbidity. On that day the oxygen consumption was also high, yet the chlorin consumption was almost exactly the same as on other days.

The absence of marked variation in the chlorin consuming power of lake water under present conditions seems to indicate the possibility that the chlorin dosage need not be varied from day to day. And it is certain that oxygen consumption, as determined by the methods in common use, gives no indication of what the rate of chlorin consumption will be. The table shows how quickly and completely the chlorin disappears from the water (at summer temperature at least), after three hours exposure only inert compounds remaining, and after two hours a mere trace of chlorin. The danger, therefore, of injurious action of treated water on the animal system or on plants, is nil.

The infinitesimal quantity of chlorin added can be appreciated when the fact is mentioned that it increases the titration for total chlorin in 100 c.c. of water by only 0.05 to 0.1 c.c. of standard silver nitrate solution.

It was considered desirable to study the effect of chlorin treatment on the alkalinity (due to carbonates or bicarbonates) and on the hardness of water. It might be supposed that both of these would be increased, since bleaching powder solution is alkaline (due to calcium hydroxid) and contains considerable calcium.

#### ALKALINITY.

Date	Parts Cl Per Million	Before Adding Cl MgCaCO <sub>3</sub> Per L	After Adding Cl MgCaCO <sub>3</sub> Per L
June 10	0.710	98	97
" 12	0.731	95	97
" 13	0.704	98	100
" 14	0.683	99	97
" 15	0.648	99	95
" 16	0.756	100	87
" 17	0.722	101	96
" 19	0.779	105	97
" 20	0.760	106	96
" 21	0.760	102	97

The alkalinity was estimated by titration with acid, using erythrosine as an indicator. The hardness was estimated by standard soap solution, since it is the soap-neutralizing power of water that is of practical importance.

The results of both are reported in the table as equivalent to calcium carbonate in milligrams per liter of water.

## HARDNESS.

Date	Parts Cl Per Million	Before Adding Cl	After Adding Cl
June 7	0.763	120.1	129.5
" 8	0.794	124.8	126.4
" 9	0.707	124.8	120.9
" 10	0.710	129.5	123.2
" 12	0.731	127.9	127.9
" 13	0.704	132.6	124.8
" 14	0.683	124.8	124.8
" 15	0.648	120.1	123.2
" 16	0.756	119.3	115.4
" 17	0.722	117.0	124.8
" 19	0.779	118.6	112.3
" 20	0.760	113.9	120.1

It will be noticed that the alkalinity was increased on only two days (June 12 and 13) and then but slightly. On eight days there was a *decrease* of the alkalinity after adding chlorin, varying from a slight to a distinct decrease and averaging per day 6.0 milligrams  $\text{CaCO}_3$ . Even in distilled water bleaching powder solution gave no increase in alkalinity.

Also the hardness of water is not uniformly increased by treatment. On five days there was an increase in soap-consuming power, on five days there was a decrease, and on two days it was unchanged. The variability in results may have been due partly to variability in the carbon dioxide content of the water. In boiled distilled water the added chlorin solution increased the hardness of 4.68 milligrams  $\text{CaCO}_3$  per liter. The average of the above 12 estimations is exactly the same before and after chlorin treatment.

We may, therefore, safely conclude that there will be no effect of practical importance on the alkalinity or the hardness of the water after treatment by bleaching powder equivalent to 0.7 parts available chlorin per million.



### Hypertension of the Portal System.

By MORRIS SCHOTT, M. D., Cleveland, O.

Before entering upon the vast domain of portal hypertension it will not be out of place to consider some of the physiological and anatomical peculiarities of the portal circulation, touching briefly on the gross pathological conditions, the physiological changes, and clinical symptoms, by which portal hypertension makes itself manifest. The hepatic artery branches off from the celiac axis, it supplies the nutritive elements to the hepatic tissue, its branches do not supply Glisson's capsule nor the ramifications of the hepatic duct. The source of the blood supply to the peripheral lobules is still in dispute among anatomists, some claiming that the lobules are supplied with arterial blood and others contesting this theory. The inferior vena cava is in close contact with the posterior part of the liver, forming a venous canal through its substance. The hepatic veins have no system of valves, and they enter the inferior vena cava at a greater or lesser angle. Both these facts favor the reflux of the hepatic circulation during diastole, especially in heart disease with broken compensation. The portal vein is the most important from the physiological and functional standpoint: it collects the blood from the splenic, gastric and mesenteric circulation, forming a large trunk which courses along the anterior border of the foramen of Winslow; and divides at the hepatic hilus into branches going to the different lobes of the liver, all of which receive blood from the ramifications of the portal roots. We can readily understand that obstruction or any embarrassment of the circulation in any part of the portal system may bring about symptoms referable to such processes as subhepatic hypertension, portal hypertension and subhepatic hypotension.

What are the normal conditions of the portal circulation? First of all the vis-à-tergo, secondly the resistance of the hepatic capillaries. When the capillaries of the lobules dilate, filling after the manner of a sponge, they take up a considerable quantity of blood—when they contract the blood is sent from the periphery to the center of the lobules. Additional factors in the portal circulation are tonicity and the contractibility of the hepatic veins which are influenced by vasomotor stimuli. The

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*Read before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, Nov. 4, 1911.*

direction of the portal subhepatic blood current, however, seems especially to be influenced by the difference in the amount of tension. According to Rosapelly the blood pressure in the normal portal vein equals from seven to 18 mm. of mercury and may even attain 24 mm. during digestion, while the manometer indicates a very low pressure (0. to 7mm.) at the subhepatic portion of the same vessel.

This difference in the amount of pressure explains to a great extent the part it plays in the progress of the blood towards the inferior vena cava. French investigators have done much work on this subject and have established the normal pressure in the portal vein of the dog as equal to 5 mm. of mercury. Experiment has also shown that the pressure in the portal circulation is greatly modified by the spleen and intestines. The spleen, on account of its distensibility, constitutes a safety valve and to a certain degree regulates and guards against venous plethora. The intestines may assume the same rôle but in a more modified form, especially during digestion, or contraction of the abdominal walls, or during exercise. Experimental portal hypertension has been induced by ligating the portal vein, and thus obstructing the portal blood flow. If the obstruction be sudden and complete, death will result in from a few minutes to one and a half hour's. A marked congestion of the liver and abdominal viscera is produced. The spleen may attain four or five times its normal dimensions. In contrast to this intense abdominal congestion we are struck with the marked anemia of the thoracic contents, in other words we have an intense congestion below the diaphragm and a relative anemia above it.

There are numerous hypotheses as to the cause of sudden death following the abrupt constriction of the portal vein. Schiff and Laudenbach have insisted on the theory of the accumulation in the organism of certain poisons which the liver, in the normal state, is capable of destroying. They claim that the liver acts in the manner of a filtering apparatus. Another hypothesis is that death is caused by sudden congestion following the purely mechanical stasis. Under this latter theory death would be due directly to the hypotension in the arteries. Bender has shown (*Archives de Med. Exp.*, Nov., 1899) that by sudden ligation of the abdominal portion of the aorta below the celiac axis the death of the animal is considerably retarded. As



a third cause for these important vascular troubles renal congestion may be mentioned, but this is only one of the consequences of portal stasis.

The analogy between experimental portal hypertension and certain hepatic syndromes is probably very close. One of the best methods of investigating this condition is by the injection of colored fluids into the vessels drained by the portal vein. After an injection the spleen increases in size, thus showing the part it plays in portal stasis. The richness of the anastomosis is well shown by such injections of colored fluids as well as by what a marked effect even slight obstructions have on the portal system in general.

The symptoms of portal hypertension are often relieved, or delayed, through the anastomosis with visceral or parietal venous systems in the neighborhood of the portal vein. Anastomoses with the veins about the esophagus, with the hemorrhoidal veins, with the renal and with the pulmonary veins, as well as with the veins of the abdominal walls, have been demonstrated. Distension of the latter forms one of the most striking clinical signs of portal obstruction (i. e. hypertension). By all these accessory paths the portal blood can gain the general circulation when there is obstruction in the portal vein itself. Observation in cases dying with portal obstruction, especially in advanced cirrhosis of the liver, has brought out the frequency with which adhesions between liver and diaphragm, or liver and belly wall, have aided in side-tracking the congested circulation. The improvement occurring in the symptoms of cirrhosis is probably due to these vascular adhesions, the formation of which is the underlying principle of Talma's operation of omentopexy. Opsiuria which accompanies cirrhosis of the liver has disappeared after this operation. The abdominal wall in cirrhosis may show a very marked dilatation of its vessels. The paraumbilical vein is especially prone to dilate. In a woman operated on at the Hotel Dieu the paraumbilical vein was so large as to be mistaken for a coil of intestine. Postmortem in these cases the spleen is found to be enlarged, and usually the splenic vein is found to be greatly dilated. In brief, the above changes constitute some of the gross pathological manifestations resulting from obstruction to the portal circulation.

Symptoms arising from the dilatation of vessels which

anastomose with the portal vein are not uncommon. Of especial importance are hemorrhage from the gastro-intestinal tract, and disturbances of function of the stomach and the intestines. It is known that esophageal varices are common in cirrhosis of the liver, and, as mentioned above, depend on the attempt at compensatory circulation in portal hypertension. The varices are located in the lower third of the esophagus beneath the mucous membrane. They are often much dilated, sometimes reaching the size of goose quills, and are surrounded by a marked area of hyperemia. The dilated veins may extend down on the greater curvature of the stomach. It is not surprising that these varices often rupture, and give rise to considerable hemorrhages. The congested condition of the gastric mucosa leads naturally to marked impairment of the functional activity of the stomach. Dilatations of the intestinal veins are not so common or so marked as those in the esophagus and stomach, but a certain amount of congestion is probably the rule. Dilatation of the hemorrhoidal veins is a frequent accompaniment of cirrhosis. Quenu, who has made a profound study of the condition, thinks that hemorrhoids are the result of a phlebitis. Reinbach on the other hand claims that the hemorrhoid is a cavernous neoplasm, while Gilbert believes them to be of purely mechanical origin. On the whole the most characteristic phenomena resulting from portal hypertension, are enlarged spleen and intense congestion occurring in one part or another of the digestive tract, causing either hemorrhage or thrombosis of the veins. Ascites is a common sequel of portal obstruction and is without doubt due purely to stasis.

In portal hypertension there is a constant hypotension demonstrable in the peripheral arterial system which is in direct proportion to the portal stasis. This lowering of arterial tension may be due to the influence exerted by the biliary secretion on blood pressure. M. Parisot claims this action is due to the influence of the bile salts. Other authors suggest that this lowering of blood pressure is due to a functional disturbance of the adrenal glands, and still others claim a nervous origin for it. However, the general consensus of opinion is that the cause of the arterial hypotension is purely mechanical.

Experimentally there exists a real balance between portal and arterial pressure, the one increasing as the other decreases.



In the majority of cases clinical observation seems to bear out this fact. We may find in this phenomenon an explanation of the urinary and intestinal troubles which occur so often in cirrhotics. The spasmodic diarrheas occurring in the course of cirrhosis may possibly be attributed to the same cause.

Gastro-intestinal hemorrhages are frequent in affections of the liver, but are often overlooked. The hemorrhage may be manifested only by the presence of occult blood in the vomit or feces, and can be demonstrated only by careful microscopic or chemical study. Usually, however, the blood is readily recognized and occasionally the hemorrhage may be tremendous, killing the patient in a few minutes. Hematemesis is not infrequent, and may be of the coffee-ground variety, which when associated with cachexia and anemia may cause a suspicion of gastric cancer, or of peptic ulcer. This condition may be differentiated from the true gastric ulcer by the character of the vomited blood, which in cirrhosis is usually of a dark red color, and by the fact that there is no pain, or if pain does exist it is not exaggerated by the taking of food. It is interesting that when hemorrhage exists in these cases there is a notable absence of ascites, and there seems to be a direct connection between these two accidents of cirrhosis. Hematemesis may follow puncture for the relief of ascites, as in the cases reported by Ewald, Leube, Perrin and Estachy, and is not at all uncommon in cirrhosis without ascites. In such cases the underlying cause (portal hypertension) may be difficult to recognize, on account of the absence of symptoms. That hematemesis in cirrhosis is often due to rupture of the esophageal or gastric veins has long been recognized and there is also good experimental ground for this view, but it is also true that the hemorrhagic tendency noted in numerous acute intoxications is due to the loss of the antitoxic function of the liver, resulting from the destruction of that organ.

Another of the important signs of portal hypertension is hemorrhoids, that is to say hemorrhoids occurring without any obvious cause, such as pregnancy, pelvic tumors, chronic constipation, etc. When such conditions do not exist the presence of hemorrhoids may be taken as strong evidence of hepatic disease. A careful rectal examination will usually reveal the presence of hemorrhoids in cirrhosis of the liver.

Ascites is a very inconstant symptom of portal hypertension. It may appear late in the disease, or possibly never manifest itself. In the so-called anascitic cirrhosis, a careful search will usually reveal the presence of small effusions.

The disturbances in urinary secretion which are most frequently connected with portal hypertension are oliguria, anisuria and opsiuria. Oliguria is not uncommon in the late stages of the conditions. Anisuria is a rare condition. The delay in urinary secretion, known as opsiuria, is the most interesting symptom of portal hypertension. In order to properly study the condition, the patient should be under observation, and on a carefully planned regimen. In the normal individual, the excretion of urine reaches its maximum about four hours after a meal. In normal conditions there is a larger amount of urine passed during the first four hours after a meal than in the second four hours. It has been found that the maximum excretion of urine is distinctly delayed in portal hypertension. The maximum amount excreted after a meal occurs between the fourth and eighth hours. This symptom has been found to be remarkably constant in cases with portal hypertension, and is of considerable diagnostic importance.

## HEALTHY SUBJECT.

	Periods of emission	Quantity	Urea	Chlorids
Dinner at 12 m.	12 m. to 4 p. m.	365 c.c.	6.62 gr.	3.64 gr.
	4 p. m. to 8 p. m.	242 "	4.24 "	2.15 "
Supper at 8 p. m.	8 p. m. to 12 p. m.	275 "	5.20 "	2.45 "
	12 p. m. to 4 a. m.	254 "	4.54 "	1.54 "
	4 a. m. to 8 a. m.	258 "	4.62 "	1.45 "
	8 a. m. to 12 m.	235 "	4.44 "	1.78 "
Total....		1629 c.c.	29.66 gr.	13.01 gr.

## CIRRHOTIC SUBJECT.

	Periods of emission	Quantity	Urea	Chlorids
Dinner at 12 m.	12 m. to 4 p. m.	130 c.c.	2.40 gr.	0.21 gr.
	4 p. m. to 8 p. m.	164 "	2.73 "	0.34 "
Supper at 8 p. m.	8 p. m. to 12 p. m.	108 "	1.92 "	0.17 "
	12 p. m. to 4 a. m.	172 "	2.58 "	0.28 "
	4 a. m. to 8 a. m.	146 "	2.46 "	0.24 "
	8 a. m. to 12 m.	154 "	2.39 "	0.30 "
Total....		874 c.c.	14.48 gr.	1.54 gr.

In the treatment of portal hypertension we should try to relieve the embarrassment of the intrahepatic circulation.



Massage of the liver, vibratory treatment, deep breathing or cupping over the liver have all been recommended and may be of some value. Ascites is best treated by abdominal paracentesis, but it should always be remembered that repeated puncture may lead to cardiac dilatation, syncope, and hemorrhages from the digestive tract. Diuretics may be of some value in the removal of ascites. With marked, recurring ascites it is well to reduce the daily amount of fluid ingested. The use of hydrogogue cathartics is claimed to lessen the tendency to hemorrhage. Hemorrhage in this condition is usually a protective measure, and unless too large, should not be interfered with. The patient will often show great improvement after a hemorrhage from the stomach or intestines.

Talma's operation of omentopexy has been recommended, but has given unsatisfactory results. Recently Rutt has suggested making an anastomosis between the internal saphenous vein and the peritoneum, with the idea that in this way the ascitic fluid will be carried away. The operation is not a difficult one, and brilliant results have been reported for it in a few cases.

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## **A Review of the Routine Bacteriological and Chemical Examinations of the Cleveland Milk Supply.**

By H. O. WAY, Cleveland.

Milk samples for bacteriological and chemical examination are collected from the railroad depots as the milk comes from the producer or shipper, on the street from the wagons of the retailer or wholesaler, and from various other sources as occasion may require. An indexed record of each sample, indicated by a serial number, is kept on file in the laboratory to show the name of the producer and dealer, together with the date and place of taking the sample, as well as the results of the examination. These are copies of signed, official reports and are therefore in the form of public records.

Unfortunately the circumstances under which the samples have been collected are such that it is rarely possible to follow a given consignment of milk through the various hands till it

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*Read before the Experimental Medicine Section of the Academy of Medicine of Cleveland, April 1, 1911.*

reaches the consumer, so as to obtain exact comparative data. Any comparisons that may be made from the data at hand can be only approximately correct, and cannot be regarded as having any scientific value.

Since the beginning of 1908 routine bacteriological counts have been made on samples collected from various sources for that specific purpose. This review, however, will be confined almost entirely to the bacteriological and chemical data obtained in 1910, during which time both examinations have been made from the same sample.

*Bacteriological examinations:* Of 2276 samples upon which a count was made during 1910, 574 or 24% were found to contain over 500,000 colonies of bacteria per c.c. Of these high samples, 126 were collected at the railroad depots, representing 11.8% of the samples from that source; and 367 were from retail wagons, being 38.8% of such samples.

A comparison of the samples obtained from these two sources from April 1 to September 30, 1910, is given in Table I. The month of June will probably serve best for comparison because the total samples examined from each source are more nearly equal, and the influences affecting the milk may be assumed to be nearly constant in each case. From this we find that 22% of the samples taken from milk shipped by the producer contain over 500,000 colonies, and 22% contain less than 100,000 colonies per c.c., while those collected from the retail wagons on the street show that 38% contain over 500,000 colonies and only 7% contain less than 100,000 colonies per c.c.

TABLE I.

Synopsis by percentage of samples collected between April 1 and September 30.

Month	Source	Total Samples	Colonies per c.c.			
			over 500,000	250,000 to 500,000	100,000 to 250,000	Less than 100,000
April	Producer	60	10%	0%	15%	16%
	Retailer	257	8	6	15	23
May	Producer	80	5	14	11	26
	Retailer	261	16	5	15	23
June	Producer	146	22	8	8	22
	Retailer	197	38	9	7	7
July	Producer	80	20	19	5	5
	Retailer	159	41	13	8	7
Aug.	Producer	131	28	10	13	20
	Retailer	210	30	15	19	14
Sept.	Producer	59	25	8	30	15
	Retailer	206	35	15	18	12



A comparison of the percentage results obtained during the last three years suggests that there is a somewhat constant relationship between the bacterial content of the milk as it reaches the city and that existing at the time it is delivered to the consumer. This is also shown by the average percentage for June, 1910. From Table II. we find that, of the milk which contained less than 500,000 colonies per c.c. when it reached the city, not more than 60% is delivered to the consumer with less than that number of bacteria. In other words, approximately 40% of the milk containing less than 500,000 colonies per c.c. when received, shows an excess of that number before it reaches the consumer.

TABLE II.

Percentage of samples found to contain less than 500,000 colonies per c.c.

	Year	Producers	Retailers	Difference
	1908	88.2%	55.8%	60.0%
	1909	91.9	52.9	57.5
	1910	66.4	38.9	58.8
June	1910	38.0	23.0	60.5

From the same table it is apparent that while the average number of samples collected from railroad depots during 1908 and 1909, and found to contain less than 500,000 colonies per c.c., approximates 90% of all samples collected from that source, in 1910 it has fallen to 66.4% or about 25% lower than for the preceding two years.

This can undoubtedly be accounted for by the fact that milk was previously shipped to the city twice daily during the heated months, while in 1910 the evening shipment was discontinued on many of the roads. This required that the evening milk be held over night in the country, often under conditions of temperature not entirely detrimental to the growth of bacteria.

That the condition is the result of irregular shipment rather than to high temperature is suggested by Table III., which shows the temperature of the milk as it arrived in the city during four of the hot months. From this it will be seen that the average temperature of the milk for 1910 was usually lower during these months than for the corresponding periods of the two years preceding.

TABLE III.

Comparative temperatures of milk when samples were taken.

	Producers			Retailers		
	1908	1909	1910	1908	1909	1910
June	62.6° F	69.0° F	61.0° F	57.0° F	59.0° F	47.0° F
July	76.5	0	72.0	79.2	61.0	51.0
August	0	74.0	62.0	61.0	63.0	49.0
September	0	0	66.0	58.7	55.0	58.0

*Chemical examinations:* The chemical standard required for milk required by both State and city calls for a minimum of 3% butter fat, and 12% total solids. In addition to this the city requires a lactometer reading of at least 29.0, which is equivalent to a specific gravity of 1.029. A lactometer reading lower than this may be suggestive of either an abnormal amount of butter fat in proportion to the solids not fat—for example, cream, or to the presence of added water. An abnormally high lactometer reading may be the result of skimming.

Some idea of our entire supply may be gained from Table IV., which shows the number of samples examined from each source, together with the number, and percentage in each case, of those below the legal standard.

TABLE IV.

Synopsis of milk samples testing below the required standard.

Source	Total samples collected	Lactometer Number below	Fats Number below	Total solids Number below
Producers	4166	148 3.5%	121 2.9%	692 16.6%
Retailers	1560	42 2.7	105 6.7	431 27.5
Wholesalers	162	1 0.6	15 9.3	66 40.7
Institutions	116	1 0.9	46 39.6	69 59.5
Restaurants	67	2 3.0	14 21.0	27 40.5

Perhaps the most noteworthy feature of this table is found in the percentage columns for fats and total solids, both of which show a progressive increase in the number of low samples as the milk passes from the possession of one to the other. Samples taken from the retail wagons show the percentage of low samples in both columns to be about twice that of the milk as it reaches the city. Those from the wholesale wagons (most of which go to restaurants) show the percentage of low samples to be three times as great; while those from restaurants show the percentage of samples low in fats to be seven times greater than those from the producers' cans at the railroad depots.



This condition may be accounted for, in the case of the retailer by the inclination on the part of some to remove "top milk" and by the failure to keep the milk properly mixed at the time of filling the bottles. Certain wholesalers standardize their milk to a point as near to the legal minimum as possible. The result is that samples are often obtained which are lower than the standard, but within the 0.2% limit usually allowed for possible error in examination. In the case of restaurants, with which may also be included institutions, it has been found upon investigation in several cases that the condition was due to carelessness on the part of employees who dipped milk from the can with little or no regard for proper mixing. Thus the first patrons served from the can were given exceptionally rich milk, while the last received skimmed milk. This indifference was also found among the nurses of more than one of the hospitals from which milk samples were collected.

In no case has it been found that the dealer was inclined to adulterate by the addition of water, though about 25 such adulterations were found among milk samples taken from cans on their arrival in the city. A number of these were originally found in the dealer's possession, but upon further investigation it developed that the shipper was the guilty party.

The use of preservatives seems to be rather uncommon. Such cases are rarely met with.

#### SUMMARY.

About 40% of the milk coming into the city with less than 500,000 colonies per c.c. contains more than that number by the time it reaches the consumer.

The bacteriological condition of the milk for 1910 has depreciated from that of previous years, apparently because of one shipment instead of two per day during the heated period.

Almost 3% of the milk brought into the city last year contained less than the required amount of butter fats.

The inclination of the city dealer who adulterates is not to make use of added adulterants, but rather to remove the fat, or what is equivalent, to add skimmed milk.

# The Cleveland Medical Journal

CONTINUING THE CLEVELAND MEDICAL GAZETTE and  
THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

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## EDITORIAL

### The "Getting" of Doctor Wiley.

The little word "get," always harsh and sometimes inelegant to the refined ear, is, in most all its uses, forceful and meaningful. In its original application it was, perhaps, synonymous with "fetch"—the relationship of the getter to the thing gotten was a temporary one. Later it took on a meaning which rendered it rather more the equivalent of "obtain"—the getter retained more or less indefinite possession of the object gotten. This meaning becomes even more emphasized when the forms of "to get" are used in conjunction with those of "to have"—a usage which is not euphonically the most pleasing, but one sometimes employed by careful stylists.



Whenever a word in the English language begins to undergo legitimate variations in meaning other modifications, not so legitimate, far removed from the word's original meaning, but very forceful, begin to make their appearance. Whereas the word "get" has come to mean more and more the firm retention of something, the colloquial use of some of its forms really means the separation of the holder from the thing held. Especially is the word thus used when the separation is to occur between the incumbent of a position and his position. The most conspicuous up-to-date example of this form of "getting" is the latest attempt to establish a line of cleavage between the Chief of the Bureau of Chemistry of the Department of Agriculture and his post. In the minds of many Doctor Wiley is the leading proconsul of the common people. Certainly he has done much and has attempted vastly more of benefit to the public. While it might take a high-school valedictorian to decide whether we eat to live or live to eat, it is a matter of fact that, for most of us, eating is not so much pleasant as necessary. The physical nature of edible things is such that in the case of most of them adulteration and substitution are relatively easy. For the protection of the consumers' Congress passed the "Pure Food and Drugs Act." The enforcement of the Act has rested largely upon the Bureau of which Doctor Wiley is Chief and in the interpretation of the provisions of the measure he has undoubtedly made enemies. The commercial exploitation of the absolute needs of humanity is a most profitable undertaking and the enemies that he has made are powerful. Perhaps Doctor Wiley has been an extremist and an alarmist in many of his contentions. If he has made any errors, however, they have been for the people rather than against them. Many attempts have been made to nullify the work of the Bureau of Chemistry by overruling Doctor Wiley's decisions. Such a procedure has not succeeded in making him sufficiently disgusted to resign his position. Since he would not graciously remove himself he had to be "gotten" in another way—he must be accused of "irregularity" in the employment of an expert. The "condign punishment" for this horrible offense, meted out by the cabinet official who is himself accused of the same thing in greater degree, is the permission to resign. The crime appears not only very small but wholly justifiable. It is often only by "irregularity" that gov-

ernments, whether municipal or national, can avail themselves of expert advice. We would gladly be *particeps criminis* on the receiving end of such "irregularity" and we would not feel that we had been particularly besmirched by the acceptance of the fee. Likewise, we do not feel that, even if Doctor Wiley has done that which is alleged, he has committed any very heinous offense. One accusation is as good as another in the series of attempts which have been made by the purveyors of poor food to remove from their path so obstinate an obstacle as the Chief of the Bureau of Chemistry. The President has so frequently given expression to views which indicate an understanding of the highest aims for which the medical profession stands that we feel sure that Doctor Wiley will receive justice and that the most recent and open of the endeavors at "getting" him will fail.

O. T. S.

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### **The New Central Dispensary and Milk Laboratory for Babies.**

The recent opening of the new Central Dispensary and Milk Laboratory for Babies at 2500 East 35th street, was an event of which the medical profession of Cleveland may be very proud, inasmuch as this Dispensary stands for the highest standards of modern scientific medicine, and combined with the best of social service methods, presents an organization of rare efficiency, typical of the best efforts of medicine in these modern days.

The Dispensary was started in a very humble way a few years ago, but it was started with the finest ideals of service, and it has developed along these very broad lines, free from prejudices, with only broad minded effort for usefulness. The highest type of service was rendered in the old inadequate building and although this new and splendid modern structure was not necessary for the foundation of a noble reputation and the winning of many loyal friends, it has become so for the furtherance of the excellent work which the Dispensary has established.

The work accomplished by this organization is very broad and varied. Perhaps the most impressive feature of its activities is the effort made among its patrons towards prophylaxis, the highest ideal of modern scientific medicine. Women are taught through its help the broad duties of intelligent motherhood. Not only are the lives of its little patients guarded by



the care which the Dispensary extends them but the aim is to conserve their health by training the mothers in the modern methods of infant hygiene. There are six branch dispensaries maintained solely for this prophylactic care of well babies. No point is too trivial to take up with the mothers whose responsibility for their children's welfare is thus enlarged. This work of education is carried into the home by means of printed matter treating of these subjects, and by the nurses who have so largely contributed to the success of this great plan of education. The nurses by gaining access to the home and winning friends there, acquire an intimate knowledge of home conditions which make their services of the highest value. At the Babies' Dispensary this phase of work among the poor, the extension of interest beyond the dispensary, only recently developing in many cities, was utilized from the beginning.

All classes of mothers the Dispensary aims to reach in its fight against high infant mortality by organizing lectures for all classes of women. It brings the problem before the public in many wise ways, well knowing that the only solution is in education. The Dispensary controls the farm from which milk supplied to its patients is obtained. The bacterial count is below ten thousand, and all the cows are tuberculin tested every six months, and still the conscientious care given the babies entrusted to its care requires all the milk given out at the Dispensary to be either pasteurized or boiled in order to escape the remote danger of tubercle bacilli, the absence of which even thus carefully handled milk cannot guarantee. Mothers, excepting in extreme cases, are given the responsibility of preparing their children's food as a factor in their education in the hygiene of infancy.

The Dispensary receives only cases unable to pay a private physician and the ability to pay is carefully investigated. In this way babies who would otherwise have no chance for life or health are saved to the home and to the State, and thus only can the medical profession be protected and the poor not encouraged into pauperism. The wide cooperation with other charitable institutions shows how broad has been the activities of the Babies' Dispensary. One example of this excellent method of cooperation is that of the Day Nurseries, all of which use the Dispensary milk and whose little charges are all under the super-

vision of doctors from the Dispensary. The Dispensary also cooperates with all physicians who wish it by furnishing its excellent milk to the infant patients among the poor of any private doctor who desires, the only condition being that once a month the doctor reports that he is superintending the child's feeding.

These accomplishments of the past are but an earnest of the future welfare of Cleveland's infant population. The Dispensary hopes in the future to be a clearing house for all welfare work among the babies, planning to organize a boarding out system, placing one child only in a home with adequate supervision; it looks forward to a properly conducted wet nurse bureau, to a municipal dairy farm and milk distributing bureau, to municipal prophylactic dispensaries and guardianship of orphans and the illegitimate; and one of its wisest plans for the future is the instruction of young girls from the higher grades in school in the modern scientific hygiene of the home and of childhood.

The Dispensary gives medical advice to those unable to pay for it, and the hospital, a plan for the near future, will provide care for a hundred seriously ill babies. Then the finest of scientific work, medical care, training of nurses, teaching of physicians, and research work will be possible.

The men who founded this institution and those who have inspired it, directed and developed it, men of the highest scientific attainments, have felt that it could but add dignity to their work to ally with it the wisest of modern social service methods. By this union the work of the Babies' Dispensary has developed to a degree of helpfulness among the poor of the city for which those interested in the future welfare of our city can only be most grateful, and to a high medical standard in which the medical profession can but feel the greatest pride. We congratulate the city and the profession upon the presence here of this institution and we look forward to yet greater achievements brought about by the appreciation of the city, the sympathy of the medical profession and the high ideal inherent in this work.

H.H.

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### Salvarsan.

Now that the excitement concerning Salvarsan has abated, one can draw fairly accurate conclusions as to its value as a therapeutic agent in syphilis.



After the drug was placed on the market consignments were sent to all parts of the civilized world. The most unfavorable results have been reported from Turkey and Roumania, while in America many more deaths have occurred than have been reported, not to mention necrosis and painful tumors requiring excision.

In commenting on the unfavorable results obtained in Turkey and the Balkan Peninsula, Ehrlich stated that he regretted he could not, in supplying Salvarsan, also furnish the necessary skill for the delicate and painstaking technic of its administration. An unstable chemical compound, such as Salvarsan is, requires special training to give it safely and to obtain good results. The more simple methods of subcutaneous and intramuscular administration are now abandoned for the more complicated intravenous method, and this is impractical except in the best equipped hospitals. In this regard Salvarsan is a disappointment, and like other medical agents requiring special technic it will be more and more limited in its use.

As to its value, there is no longer doubt. It seems more potent than mercury in destroying *Treponema pallidum*, and syphilitic lesions disappear more quickly than by any other treatment.

That one dose of 0.6 gram will not eradicate the disease in the majority of cases is now generally conceded. Whether two or three doses are required is not known with certainty. Some of the more conservative syphilographers are now giving mercury intramuscularly or in the form of inunctions, either simultaneously with or following Salvarsan. Thus far the combination promises excellent results and may be recommended early in the course of the disease when it is necessary to push medication to the utmost. Unlike sodium cacodylate, atoxyl and other like preparations, Salvarsan seems to have no deleterious action on the optic nerve. In this country deaths have occurred from "what appeared to be arsenical poisoning," acute nephritis and embolism.

Salvarsan has not thus far been of benefit to other diseases than syphilis.

W. T. C.

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### The Need for Dental Departments in Connection With Free Dispensaries.

The physician, whose duty it is to care for dispensary patients, very soon realizes that from 80 to 90% of his patients have defective teeth. Carious teeth with pyorrhea alveolaris or

granulations beneath thick crusts of tartar or underneath irritating and ill fitting tooth plates are constantly discharging pus. Sometimes this discharge of pus is increased by antral empyema, periostitis or alveolar abscess. The continual swallowing of pus leads to indigestion with vomiting, and in many cases to a septic gastritis with an accompanying diarrhea. In the patients who have gastric and intestinal complications, one frequently sees very severe anemias due to the constant septic absorption. Oral sepsis may be the starting point of a general infection with pulmonary, renal, cerebral or endocardial complications. There is probably no more common cause of continued ill health in dispensary patients than bad teeth.

Though William Hunter many years ago called attention to the dire results of oral sepsis, little attention has been paid to it by the majority of physicians and little or no provision for proper caring for these patients has been made by hospital dispensaries. In some cities they are sent to the free dental clinics, which are often situated at a great distance from the hospitals. As a result the patient seldom goes to the clinic and there is the lack of helpful cooperation between the physician and the dentist, which there would be, were the dental department under the same roof as the other departments of the dispensary. It would show just as much wisdom, were we now to send our clinical laboratory work in connection with dispensary patients to the chemical or physiological laboratories of the university, which as a rule are situated in a part of the city remote from the hospital, as to send the patients requiring the services of a dentist to a remote clinic. It is to be hoped that when hospital dispensaries of the future are being planned, provision will be made for the caring for patients with oral sepsis.

J. P.

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### Dedication of the Babies' Dispensary and Milk Station, Cleveland.

The Central Dispensary and Milk Laboratory of the Babies' Dispensary and Hospital at 2500 East 35th Street, Cleveland, were opened to the public on June 16, 1911, with a dedicatory service.

Mr. Charles A. Otis presided over the meeting, and



the exercises were opened by Bishop Leonard with a prayer which was followed by most appropriate and beautiful remarks voicing the gratitude of the city to the Babies' Dispensary and Hospital and expressing also the appreciation of the community for the good work that this institution had accomplished and would accomplish in the future.

The Chairman then introduced Dr. Hastings H. Hart, Director of the Children's Welfare Department of the Russell Sage Foundation, who addressed the meeting as follows:

Mr. Chairman, ladies and gentlemen: I count it a very high honor to be permitted to have a share in the public exercises of this occasion. Cleveland is my home. In Cleveland my father practiced medicine for 43 years, to the last hour of his life. I cannot help thinking with what delight he would share in this occasion if he had been spared.

I do not know whether you realize here how significant an occasion this is. This is a great day for Cleveland, because you have done here on this spot a beautiful and significant thing. It is a great day for the whole United States, because you have here set a precedent which will be followed. Already pilgrimages from Detroit and Toledo have begun, and they will soon be here from Chicago and New York and Cincinnati and Philadelphia. These and other cities will be compelled to come here, because here you have established something that is different from what is found in any other city in the United States.

It was my privilege to go over this building when it was in progress of construction. It has been my privilege to go over it again today. This plan signifies, first, the spirit of the donor. This is a memorial building, and it is dedicated to Motherhood; that is the inspiration of this house and this organization. The donor followed the precedent which was set for him many years ago in this city by his grandfather. There was in this city a banker, a great philanthropist, a wise and unselfish man. The grandfather of the donor of this building gave to him *carte blanche* to erect the building for the Protestant Orphan Asylum, and Mr. Joseph Perkins erected there a model fireproof building which stands today, in almost as good condition as when it was erected. How came it that that building was so wisely constructed? It

was because the donor put the carrying out of his purpose into the hands of the wisest man he could find in this city to do it. His grandson has followed the same plan. I have made some very painful observations of the way in which millionaires use their money. In a Southern city, about two years ago, a wealthy man met a friend on the street, and said to him, "If you wanted to do a good thing for this town, and put some money into it, what would you do?" "I would build some kind of an institution for girls," was the prompt reply.

This gentleman got an architect who knew nothing about institutions, and they went into the heart of the town, and upon two lots 175x100, there was erected a building at a cost of \$50,000. It would have made a beautiful club house or a small hotel or Y. M. C. A. headquarters. This gentleman then sent for me to tell him what to do with the building. He died shortly afterward and left an endowment of half a million dollars for that plant, which had been erected without any clear conception as to how it should be used and the trustees are in some perplexity today to know what to do with it.

I congratulate the donor of this building that he put it in such hands that he can be confident it will serve the purpose for which it was intended.

This building stands for the wisdom of the designers. I have spent twenty years visiting institutions, and as I went over this building I asked two distinguished experts what lack they had discovered. They both made the same answer—they could not discover in all this building anything that was lacking for carrying out the purpose for which it was intended. That means that some one lay awake nights and thought about this plan; that some one traveled far afield and studied what was to be found in Germany, France, England, Belgium and other countries across the water. It means that some one conceived here a most beautiful idea, and worked it out, step by step and thought by thought. As I went through this house, knowing the heart of the man who conceived this idea, I discovered the personality of Dr. Gerstenberger, but I see things here that Dr. Cerstenberger did not do. I see here the impress of another great physician whose portrait is before you, Dr. Edward F. Cushing; a man who



loved little children, and who brought to bear on their welfare the finest professional learning. It is also evident that the nurse had been here before this plant was completed. You will find closets and appliances and conveniences that could only have been thought of by a trained and skilled nurse. I discovered also evidences of the presence of a woman's committee, because there are things here that are the thought of the house mistress, the woman who has learned to bring together from many directions the things of diverse significance in themselves, but which when brought together constitute a beautiful harmony. Think of this waiting room intended for the poor mothers, waiting here for their turn. It is not accidental that this room is adorned as it is with works of art worthy of the finest mansion. Think of the impression that will be made on the people who come here and realize the thought taken in their behalf.

I discovered here also the work of the architect. When the laity—meaning in this case the physicians and the lay women—have conceived an idea and sketched it roughly, they call in the architect, the skilled artist to incorporate their ideas in brick and mortar and steel and cement. I do not know the architect of this building, I never met him. But I know that he is an artist, and that he understands his business. Here we have embodied in brick and mortar this fine conception which was had by these people. I feel sure that the architect sacrificed some things which he would have been glad to put into this building for artistic effect. He omitted them that he might wholly realize its ideal and purpose. I have known many architects who were so anxious to create a monument for themselves that they forgot the intent and purpose of the building they were erecting. All of you have seen churches and postoffices and hospitals which illustrate what I mean to say. But the architect here has not allowed his personal ideas or ambitions to outweigh the interests of the little children who are to be blessed by this plant.

You have here a severely simple exterior. Stand across the street and look at this building. Its lines are stern, rectangular; and yet do you not get the impression of a noble piece of artistic work? The soul of that man has gone into this brick and mortar. I learned incidentally that he bought

the brick he used and paid out of his own pocket the difference between its cost and the cheaper brick which had been furnished, in order that he might secure the beautiful and harmonious effect we have in this building. I like the man who carried out his artistic purpose at his own expense, in order not to interfere with the thing that is sought to be accomplished here. This harmonious building is a fine instrument in the hands of the skilled people who are to use it, in order that they may accomplish great things for the neglected little children in this great city.

I discovered another thing. Have you noticed the location of this building, here in this insignificant portion of the city. Some would have put it on some height where it could be seen. In a Western city a man left between two and three million dollars for the poor. It was provided that there should be a day nursery for little children, and placed near to the postoffice, a mile from the place where the people live who would want to put their children in a day nursery. This building is where it is needed, where it is accessible to those who use it, and all ideas of glory and show have been sunk in the desire to accomplish this purpose. I delight in this.

This is a Babies' Dispensary and Milk Laboratory. You are going to dispense milk here. What kind of milk? Pure milk, good milk, fresh milk—yes! Some people have an idea that if they can only perfect the milk supply they have solved the whole problem of infant mortality. This is a life saving station, absolutely. Dr. Gerstenberger in his report said that the purpose of the Babies' Dispensary is to diminish infant mortality, that is why I call this a life saving station. This whole plant is created with the expressed purpose of realizing that object. We start with milk. This institution might do infinite harm. Those who are engaged in the effort to produce a pure milk supply find themselves embarrassed by the fact that when a pure milk supply is produced the tendency has been for mothers who might nurse their own babes, to use the pure milk supply. I understand that the purpose of this organization is first and foremost to dispense the breast milk of the mother. The chances are at least five to one in favor of the child who is brought up on mother's milk from the breast, as compared with the child who is nourished on



bottle milk, in ordinary circumstances. The whole effort of this institution will be to qualify the mother to nurse her own child if possible, stimulating and encouraging her to do so, and to teach her how to nurse her own child. That mother must be taught how to take care of her breasts. She must be taught cleanliness, ventilation, and how to keep her child in the most comfortable condition in every respect. This is one of the great offices of this institution.

Now a word about the illegitimate child. You will see to it that the mother of the illegitimate child is encouraged to nurse her own child and care for it, at least through the nursing period. The responsibility for that rests first with the physician. In the outside world in a large city like this, a large number of married mothers are attended by midwives; but the unmarried mother is almost always attended by a physician. That physician can and should secure the nursing of the child by the mother. Next comes the head nurse in the hospital. These two people are responsible for the children that are abandoned by their mothers, and who use their lives in consequence.

The first purpose of this institution is to secure the raw milk which shall be thoroughly reliable, clean, put in perfect condition before it is delivered to the mother. It has been a mooted question which is the better way—whether we shall prepare the milk in laboratories for the child and furnish it to the mother in nursing bottles, or furnish the milk to the mother in pints or quarts and instruct her how to prepare it for herself. I believe you have reached the wise solution here. I am delighted to find that nine-tenths of the milk going out from this place goes out in the unmodified form, in pints and quarts, and the mothers are instructed how to prepare the milk. A prescription is given by the physician as to what the modification shall be, and the work is followed up by the visiting nurse who visits the mother sees that the milk is given to the child as the physician intends. If this milk goes to the mother as it should be fed to the child, the mother is made a mere machine. If she has sufficient intelligence, she is trained and instructed how to prepare the milk for the child, and this becomes an added factor in the sense of responsibility and obligation to her child.

Pasteurization of the milk becomes a matter of great importance to the child. If the milk can be given to the child before it has deteriorated, it is preferable to use it non-pasteurized.

This institution has already become a school of mothers. How is this school to be conducted? The experiment has been tried in many cities of class instruction, lectures, where mothers are seated on benches and the physician, standing in front of them, makes demonstrations over a child, the nurse showing the mothers how to bathe the child and feed it and how to manage for ventilating the room. It is agreed that the method which is followed here is the preferable one, namely, the physician with the mother, singly, and with her own child as the subject, demonstrates how she may take care of her own child. In this case she will be intensely observing. She will feel entirely different over the demonstration of her own child, as compared with that of another. This is a wise method.

Then the work of the Dispensary and Milk Laboratory is followed by the work of a visiting nurse. You have seen these adjoining rooms where the physicians have the apparatus for the examination of the child. You will be interested to see the schedules which are used by the physicians, and to note the discriminating care with which these children are examined, and with what professional skill this work is to be carried out. The picture of a physician who sits in a rough chair in front of an extemporized cradle watching with tense anxiety the progress of the disease of the child lying before him, is an illustration of the spirit and temper in which hundreds of physicians minister today in this country. There is no class more unselfish or more disinterested for the welfare of the poor, and especially poor children, than the medical profession. Very few people realize how many hours multitudes of physicians devote to uncompensated work in behalf of the poor. Very few of the laity realize with what cheerfulness some physicians relinquish profits that they might reap from some special prescription which they have found efficacious, and which they freely give to the world. You will find a physician constantly trying to put himself out of business. I hope we shall adopt the Chinese plan, whereby the



family physician is compensated by a regular stipend as long as his patient stays well. When the patient gets sick the doctor's pay stops until the patient gets well again. This institution represents the stand of the medical profession for preventive medicine, to keep the little child well, to preserve life; and it has its branches in other parts of the city. But as I have already intimated, this house is set upon a hill. It will be visited from all parts of the United States. Multitudes of people will come here to study this plant and these methods, and to carry them back to their own cities and put them into operation.

I congratulate you most heartily upon the happy inauguration of this most auspicious movement.

The next speaker was Rabbi Moses J. Gries, who spoke as follows:

It is a privilege to be permitted to bring you the congratulations of Cleveland and to express the deep sense of appreciation of its people, to the officers and workers and generous donors, who have made this splendid institution possible. I believe that the whole community of Cleveland owes a debt of gratitude, to those who have been so deeply interested, and so active in the organization, planning and execution to its fulfillment, of this beautiful work. Yours is a record of growth and of service; of growth from small beginnings to this great conclusion—but I should not say conclusion, because this is only a temporary stopping place, on the way to continued growth, throughout the coming years. It is a pleasure to make public recognition of the service rendered by this Babies' Dispensary and Hospital.

This institution has developed out of the small room in which this Dispensary had its beginning with an attendance of only about 10 per day, to this noble structure, with an attendance approaching 100 per day; and from 500 new cases in the first year to 2000 during the past year, resulting in a steady reduction of infant mortality. One-third of the mortality of this community, and of the people of the land, is of infants, less than one year old. The usual infant death rate is 15%, but the Dispensary babies average only 7.6%. If we save the life of the baby, we save the life of the man and woman. We may confidently look forward, to the years to come, for reduction

of infant mortality, and an increase in the saving of human life.

This institution is one of the healthiest babies in this community. At five years of age, it thrives wonderfully and does a vast amount of good. It has a body of strength and power; and behind the splendid "body" is a splendid spirit. The union of body and spirit have resulted in this plant and this equipment which are said to be the best in the United States—some say the best in the world.

It is the purpose here to prevent disease as well as to save the life of the baby, to give the babe a better chance for life and health. Sometimes we talk in beautiful phrases about Life. It is the most glorious thing in the world, the most precious possession, the sacred gift of God to man. Yet in this country, life is "dirt cheap," and is wasted on every hand, as evidenced by the number of industrial accidents, and by fatalities from preventable diseases. Thousands upon thousands perish needlessly every year. The great work of the future will be the fight against disease, man's most dangerous enemy; especially preventable disease which counts more needless victims than all the great wars of humanity. The cost of disease to the nation is being figured in dollars and cents, its cost to national efficiency—the figures are appalling.

Ours is not a vain fight. It is not useless hope, not one of the visions never to be accomplished. As we look back over the history of medicine, we learn that it has achieved some notable victories. Diseases that once ravished humankind have been stamped out by discoveries of the searcher and investigator. The time will come when we shall wipe out the blot of disease from this nation and from other civilized nations of the world. Little innocent children will not perish as they have these generations past.

Ours the duty to create a public opinion that shall focus upon the baby, the thought that the city and the nation are responsible for the lives of the people; a public opinion that shall command moral and financial support for institutions like this. Let those who preach the gospel of conservation, a magnificent idea—conserving the riches of the earth—remember that the highest type of conservation is the conservation of the child and the life and health of the community.

I am sure that I express the thoughts of the people of Cleveland when I bring their congratulations and their tribute of appreciation to the officers and workers of this institution.



The following address was given by J. H. Mason Knox, Ex-president of the American Association for the Study and Prevention of Infant Mortality, Associate in Pediatrics at the Johns Hopkins University.

### **The Value of Babies' Hospitals and Milk Stations in Reducing Infantile Mortality.**

It is indeed an honor which I keenly appreciate to be asked to come to Cleveland and take part in the dedication of this remarkably complete beautiful dispensary and milk laboratory. It is however with the greatest hesitancy that I venture to address you on any subject having to do with the better care and feeding of babies; as for years this city has been regarded by many of us as a kind of children's Mecca, to which we should travel, if we would know the best and most approved methods, and learn how to obtain the most satisfactory results. The published reports of the Dispensary and Milk Laboratory prepared by the skillful hand of Dr. Gerstenberger and exhibiting on every page his earnest and enthusiastic personality have for a long time been the admiration and despair of those who in other cities, would seek to do likewise. We can only hope that while Cleveland continues to lead the van of progress, she may have in her train an ever increasing number of cities and communities inspired by her example and encouraged to increasing effort by the story of her achievement. In this presence, I can hope to say nothing that is not trite concerning the claim of the baby upon the community, nor the advantages accruing to a community when it provides those conditions amid which its infant population can thrive.

My misgivings are further increased when I remember that much of what is already accomplished here, much of the prospect of even greater things ahead, has been made possible by the indomitable will and captivating personality, and by the ceaseless activity of that brilliant physician and devoted citizen, whose career has so suddenly ended in your midst. It would be more fitting if one of your own number should in this connection recount Dr. E. F. Cushing's hopes and plans, and testify to his unremitting sympathy with and toil for the city's destitute children. I understand, however, that this has

already been attempted in a notable memorial gathering, and therefore it may not be intrusive for one not of the circle of his intimate friends, but who for years has known of his work, and wondered at his accomplishments, to bring from a distance this tribute to his memory. No one in America who has been interested in the growing popular movement throughout the country on behalf of the defenseless babe, has failed to be influenced and stimulated by what has been achieved in this city by Edward Fitch Cushing and his devoted band of co-workers. It may not be for us, it is certainly not for me to attempt to dedicate these beautiful structures, but rather for us, who too, have seen the light, which illumined the path of duty he so unselfishly followed to consecrate ourselves anew to the task to which he gave the last measure of devotion, that the cause may not languish, but rather receive redoubled momentum until not only in Cleveland, but throughout the land every baby shall be given at least a fair chance for health and life. In this spirit and with this hope may I briefly review the extent of the problem which confronts us; one no less than the saving of the infant lives, now unnecessarily sacrificed, and the means at hand to undertake this most beneficent work. Although vital statistics in this country are notoriously meager, and especially inadequate in failing to record the number of births, it has been estimated that there are in this country approximately a million and a half infants under one year of age, and of this number about three hundred thousand (20%) die during the first twelve months. Those who have studied this question most carefully assure us that fully one-half of this number or one hundred and fifty thousand lives annually could be saved, if those responsible, whether it be parent, community, or state would see to it that each baby is provided with comparatively good care and approximately appropriate nourishment. When one considers that there are only one hundred and sixty thousand deaths of all ages in the United States from tuberculosis, the comparatively larger problem which confronts those attempting to bring about the reduction of the number of infant deaths is apparent. Moreover, the majority of the feeble infant lives that are rescued in their extremity develop into sturdy boyhood and girlhood without the stigmata of disease.



The incentive, therefore, to work for their physical salvation not only on account of themselves but from motives of statecraft is evident, and besides, who can tell amidst this annual holocaust how many potential men and women of unusual talent have been sacrificed. In this campaign on behalf of the babies the most formidable antagonist met with at every turn is ignorance. Ignorance of the babies' elementary needs on the part of the majority of parents: ignorance of the less evident and hidden necessities, on the part of scientists and physicians. Our duty therefore, if we would comprehensively grapple with the problem is a twofold one. We must seek by every means possible to disseminate broadcast such knowledge as we possess of the helpless babies' care and diet, and we must seek also to increase our knowledge, still so inadequate, by study and research. I take it that the most approved methods for meeting these requirements are both actively engaging your attention. One is already largely accomplished in your prophylactic babies' dispensaries and their allied activities. The other, and just as important, you have planned for in the proposed babies' hospital in intimate relation with your department of pediatrics in the university. If we would add to our fund of knowledge concerning the baby, it must be studied under the best conditions and under continuous observation. This is a most neglected field in this country. It has already been tilled, partially, abroad where the reports from paediatric clinics, particularly in Germany, form the basis of much that we teach on this side of the water. Very much more, however, needs to be known before our information concerning the infant in health or disease equals even that which we know of adults. The child's head at birth is about a third of its total length. The head in adult life is only about one-tenth of the height of the body. These different proportions do not untruthfully represent the marked variations which exist in form and function between the baby and the grown man. Such radical differences demand specialized study for the infant, which can be carried on only under ideal conditions when the babies are in a modern hospital having a laboratory of its own or in close connection with the several laboratories of a medical school. Much of the advance in the investigation of disease among adults during the

last decade has come from hospitals having these associations. The number of such ideal institutions for infants in this country is exceeding small. The plea for them can be made even stronger. Some of the most difficult problems in nutrition and metabolism can be more readily approached in the infant than in the adult, because of the greater simplicity of diet and ease of handling. It is probable that where studies in metabolism could be carried on in equipped infants' hospitals much would be added to our knowledge of the sorts of food most desirable not only for babies of various ages and conditions, but also for their elders. Such a hospital should of course be a teaching hospital. It is a truism nowadays to affirm that the diagnosis of diseased conditions is more accurate and that the care of the patient more adequate in those hospitals where the physician in charge is constantly engaged in instructing students, and the advantage to the student of learning his paediatric knowledge in such an atmosphere of growth and stimulation must be self-evident. At present nine-tenths of the physicians called upon to treat your baby and mine apply the knowledge they have received second-hand from a didactic lecture, without having had an opportunity to follow a baby's illness from start to finish. The same limitation of opportunity is true, I regret to say, in many of our training schools for nurses. Most of our nurses are obliged to acquire their first paediatric experience with sick infants from their early private cases. If from each of our medical schools and training schools a large number of physicians and nurses could be graduated each year, fully alive to the peculiar needs, as far as is known, of the infant in health and in disease, our children would be more efficiently cared for and the difficulty we have in assuring the public of the importance, and the possibility of reducing this infant mortality would be much simplified.

There is one caution which I feel should always be voiced when advocating a babies' hospital. That is, that it should never degenerate into an institutional home, where very young infants are kept for indefinite periods. Under these circumstances babies never do well, although the diet and attendance may be good. An ideal babies' hospital fulfills its function best when infants suffering from malnutrition and various



diseased conditions are received and studied carefully for a comparatively short period and then returned to their own or foster homes, where that "mothering" so difficult to provide in a hospital, which includes all those little individual attentions, and the required periods of rest, can be furnished.

But our present knowledge and the additional facts, which would certainly be acquired in wards devoted to the study and care of infants, must be popularized and disseminated to reach the multitude of infants now in need of it.

And here lies the great value and function of the dispensary and milk station. It has been repeatedly shown that mere talk about the importance of clean milk and the better care of the baby, or the presentation of the facts on printed slips, have much less value than an objective demonstration, accomplished through actual distribution and preparation of clean milk, in the home of the baby through the visit of a tactful well trained nurse. In Baltimore I have never been able to determine which seemed the more serviceable, the nurse's visit or the pure milk. In all our large cities, if the number of nurses devoting themselves to house to house visiting and tactful instruction to the mothers of those babies needing it, could be so multiplied as to allow sufficiently frequent visits, the reduction of the number of infant deaths would be even more striking. The mother, the natural caretaker of the baby, is the pivotal point in all this work. *Her* confidence must be won. *She* must be persuaded to undertake the little changes in the baby's daily routine, its clothing, the ventilation of the room, its food, which the nurse suggests. This work is enormously enhanced if a babies' hospital such as I have referred to can be carried on in association with it. In this haven a child can be taken early in its illness and proper treatment instituted, which is often so difficult to carry out in the home; and then the diet which was found to be suitable in the wards can be continued after its return through the agency of the prophylactic dispensaries. There is one danger, I think, in some of our dispensary work in this country, that is, that we perhaps unconsciously lay too much stress on artificial feeding. No diet of man's device can equal the baby's natural nourishment, to which it has an inalienable right, and which is exactly adapted to its growing needs. Our milk

stations should be primarily centers of advice, where mothers can come and be instructed in all that pertains to the welfare of their children. An additional feature of our work which, I think, will become increasingly important is the visiting and instruction, by physicians and trained nurses, of expectant mothers, especially those to whom this sacred relationship is new. They may thus learn at this susceptible period, the duty and the privilege of nourishing their own babies, and of properly preparing for its arrival.

A community provided with these two arms of service, the one the baby's hospital, furnishing a constantly increasing stream of knowledge to the most perplexing problems of infant and child life, in health and disease, and the other, the prophylactic dispensary and milk station ready at all times to apply this knowledge and pour the oil and wine of real neighborliness into the wounds of those in distress. Such a community, I repeat, has found the method of meeting in our day and generation the most difficult medical and social question of the time, and it is because Cleveland has in fact and in prospect fulfilled these ideals that I feel myself so honored in being present at these dedication services.

The Chairman stated that it was the custom, at the opening of a new institution, for the President to accept from the Building Committee the keys of the institution. He had therefore great pleasure in asking Mr. Alexander S. Taylor, in the absence of the Chairman of the Building Committee, Mr. Arthur D. Baldwin, to perform this duty.

Mr. Taylor then spoke as follows:

In the absence of Mr. A. D. Baldwin, the very efficient Chairman of the Building Committee, it is my privilege and pleasant duty to deliver to you, Mr. President, the keys of this splendid, completed edifice, made possible by your foresight, ability and efforts, and the cooperation of others who have labored so faithfully with you as individuals and committees to carry forth to completion this monument to a worthy charity.

I desire to thank you for the valuable services you have rendered the Building Committee, both in advice and in personal effort; to the architect, Mr. Garfield, who has been so



faithful in his work, giving it not only his professional but personal interest; to the Ladies' Committee; to the Board of Trustees; and to those splendid people who have contributed to this charity, so that this building could be a reality, I wish to extend our thanks.

Without trespassing too much on your modesty, Mr. President, I desire to say something at this time to the public as to the faithful and loyal services that you have personally rendered the cause of the Baby. Since the very inception of this organization, I have been in touch with you and know the splendid work that you have done for this noble cause. I realize how much valuable time you have given to the carrying forth to completion of this hospital. No one knows how you have laid aside important business matters, neglecting them to labor for this cause. I feel that the people should know what you have done. Your position permits you to speak of the work of others, yet, you hide your own sterling modesty in your praise of others.

I know the delivering to you of these keys is but a formality, realizing that the doors of this splendid, completed institution will never be locked—always remaining ajar to receive any case worthy of needed assistance.

I thank you for the pleasure it gives me of taking but a small part on this occasion of the dedicating of this hospital. Through united efforts you are building a nation, by saving God's greatest blessing—the Baby.

Mr. Charles A. Otis then said:

It was through Dr. Cushing that we were all brought together. It was not a difficult matter to get his large family together on the one object which he should promote. In all this work there has been the presence and the energy and the thought and the wonderful example, which will never leave us, of one of the greatest men I have ever known, a man of modest manner but of great ability. In association with Dr. Cushing it has been nothing but a pleasure. My only regret is that I did not see more of him and give more time to the work of this institution. Personally I want no credit. An organization of this kind has to have a representative at its head.

The work of Mr. Arthur Baldwin has been wonderful and

to him a great amount of gratitude is due. Associated with him has been Dr. Gerstenberger, to whom we give credit as we would to a successful business man, but his love and devotion are none the less, and of his work as a professional man we are proud in every way.

The work of the architects, Messrs. Garfield and Hannon, has been simply fine and much praise is due them for the spirit they at all times have shown, as have also Mr. Taylor and many members of the various boards and committees, from the beginning of the work until this very minute.

The starting of the institution with the help of many friends making small and large donations, was the taking of a house where, we had decided, we could carry on the work. Then Mr. and Mrs. Wade and their families came forward with a handsome gift, wonderful in its association to their mother. That gift has helped us to accomplish what otherwise might have been held back for years. It put us on our feet at once in regard to the work which we had contemplated, and started our endowment fund.

I don't believe in having endowments so large that we begin to sit back and lose interest in having friends give in a small way. But an endowment fund to a certain extent is very necessary in an institution of this kind, because there are occasions when, through bad times and for other reasons, an endowment fund is the most necessary thing. To the Wade family in great love a thought has been given at this most important time for the help which completed our institution and cleared us of all obligation, enabling us to go to work in a way that people never can when they have a debt hanging over them.

On April 4, 1911, the Board of Trustees of the Babies' Dispensary and Hospital unanimously decided to attempt to carry out Dr. Cushing's plan of erecting a modern Babies' Hospital, and to make this building a memorial to his memory.

It is a great pleasure to say that a donation has been made to start this building, and it is desired now to secure an endowment fund sufficient to erect a hospital large enough for this work for a long time to come.

I was interested in the suggestion and caution of Dr. Knox, that the institution remain as it is started, an institution to help people to help themselves; and that it should not be allowed to



get into a condition where it takes care of people for a long time. Charity work is beautiful, but real charity work is that which helps a man to take care of himself. To let people depend on an institution and become helpless is one of the worst things that can happen to them. Therefore when the plans of our hospital are carried out, we will maintain our position as helpers of those who are suffering, to help themselves.

It was Dr. Cushing's own wish that the opening of these beautiful new buildings be made the beginning of a campaign to secure funds for the building and endowing of the much needed Babies' Hospital. It was his desire that the plans for the proposed new structure be presented at this opening, and therefore the architects, Mr. Garfield and Mr. Hannon and the medical director, Dr. Gerstenberger, were authorized to prepare such plans and have them ready for this day. It is a great pleasure to see that these plans have been very well worked out and completed by this committee and have at the last meeting of the Board of Trustees of the Babies' Dispensary and Hospital received the unanimous approval of all those present. Dr. Gerstenberger will therefore present to you with the aid of the stereopticon these plans.

Dr. H. J. Gerstenberger spoke as follows:

Inasmuch as Dr. Knox has so convincingly stated the need for a Babies' Hospital, it remains for me simply to demonstrate to you very briefly the plans that have been worked out for the proposed Babies' Hospital here. It is my desire not to give you a detailed description of the structure, but rather to show you the plans, to make clear some doubts that might arise in your mind regarding the location and type of the building.

In the basement have been placed a general kitchen and storage room; dining room for nursery maids and servants; a room for machinery, such as a cooling plant, vacuum system, etc.; and an autopsy room with necessary cooler.

The building runs north and south, the front facing east, the rear facing west, in order that as many wards as possible be placed on the south side and also that the laboratories get the north light. The first floor is divided into halves, the east-erly half harboring the admittance room, bathroom, observation

ward, and a completely separate ward for infectious eye and skin cases. The plan will be to keep new babies in the observation ward for 48 hours and if, at the end of that time, no contagious disease has been noticed the patient will be sent to the fifth floor, which is the lowest one for the accommodation of patients. The other half of the first floor contains on one side an administration room, and a large lecture room for students, nurses and mothers.

The second, third and fourth floors are devoted to living and sleeping quarters for nurses and nursery maids. Each floor has a suite either for a superintendent of nurses, or assistant superintendent of nurses, or a matron, and all the rest of the space is divided into as many individual rooms as possible, except on one floor where there is a dining room and pantry for the nurses. It may seem strange to you that three floors of this eight story building are devoted to dormitory purposes, but you must understand that it is necessary to have more nurses to care for a given number of babies than it is to care for the same number of adults, and as to individual sleeping rooms I think that at this time there can be no question that it is at least necessary to give the nurses individual sleeping rooms in order that they may get sufficient rest from their strenuous work: this is absolutely necessary if you wish them to do good work, and I think there ought to be no question about that.

The fifth floor has four wards, two large ones and two small ones. Each one opens on two verandas and has windows on both sides, therefore getting light from both sides and permitting cross-ventilation. The inside walls will be made of windows, with the exception of the lower three feet, which space will be used as cupboard room. These windows on the inside walls give just so much more light and make not only the corridors but the entire building much more pleasant than the customary hospital. It also enables any nurse to see what is happening in one half of the building. Along the north side are placed smaller rooms to be used either for wet nurses, specially ill patients, private patients, etc.

The sixth floor contains one large ward, the remainder of the space being divided into suites of one, two or three rooms which can be used either singly or in combination for public, private, or semiprivate work. One of the suits is arranged for premature babies.



On the seventh floor have been placed wards for 12 babies. This was the architect's idea in order to enable us to have an administrative unit of one hundred. Now I am very glad he did this, because it will enable us to put such babies in this ward the study of whose diseases will be profitable to the advance of our knowledge, and because, as the rest of this floor is devoted to the medical library with a connecting record room, and living and sleeping rooms for physicians who are to work in the hospital, it will enable the physicians to see the patients with whom they are working much more frequently and easily than if they were not on the same floor.

The eighth floor is devoted entirely to laboratories, viz., histological, bacteriological, metabolic, photographic, and x-ray. One room is to be used for animal observation, a second for keeping special apparatus, and a third for cleaning various utensils and for making media, that is, food necessary for the study of bacterial.

The power house and laundry have been placed in a separate building. The laundry on the upper floor and the boilers on the lower.

The elevation, as you see, gives a much better impression of the entire building. As has been said, it looks like a skyscraper. As a matter of fact it is a skyscraper as a hospital, but there are very good reasons for building this way, viz.: first, to save the cost of an additional basement and roof which would be necessary if nurses were placed in a separate building for themselves; second, because it is much cheaper to heat and administer one building than two separate buildings; third, because it saves just so much land as the other building would occupy; and four, and that is most important for this locality, it puts the babies up in the air above the dust and dirt.

Let me impress you with the fact that this plan is not a wild dream, but that it represents not a bit more than is really necessary to do good work today.

We need this institution, in the first place to care for sick babies who now, in many cases, are dying simply because of lack of beds; secondly, to teach physicians, nurses, students, and nursery maids the essential special work—and that there is need for this I think we are all agreed, especially you ladies who know even better than I how the lack of a school for nursery maids

is felt in Cleveland; thirdly we need it in order to discover some of the causes of the large loss of infants' lives, and remedies for these troubles. There is no reason in the world why America should continue, as heretofore, to have institutions simply as hotels for the sick, leaving the finding out of new things to other countries. This is the kind of work that will advance American medicine and you should all be as much interested in that as you are to see America take the first place in other things.

I cannot permit this opportunity to pass without expressing my own personal sense of appreciation and thanks to the President, and the various Boards and Committees and to every member of the Association for their sincere and earnest support and aid, and especially to Miss Leet and her ardent coworking nurses, and also to the physicians who come here daily without recompense, to administer to sick babies.

The exercises were concluded with a benediction by Bishop Leonard.

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### Department of Therapeutics.

Conducted by J. B. McGEE, M. D.

**Auricular Fibrillation:** Arthur R. Cushing, in the *American Journal of the Medical Sciences* for June, treats of irregularity of the heart and auricular fibrillation. Fibrillation is most readily induced by rapidly repeated electric shocks, applied to the heart. When a rapid series of weak electric shocks is passed through a chamber of the heart, it responds with occasional extrasystoles, and if the strength of the shocks be increased an artificial rhythm may be elicited. As the strength of the current is further increased, the rhythm accelerates, diastole becomes imperfect, and finally the chamber no longer reacts as a whole, but apparently individual fibers, take up their own independent rhythm—fibrillation, incoordinate or vermicular contraction, or delirium. When this stage is reached the chamber no longer expels its contents, and if the ventricle is the chamber involved, the circulation ceases, and death results unless the normal rhythm returns. A number of poisons in large quantities have similar results—the digitalis group, aconitin, barium, etc., and it seems not unlikely that some cases of sudden death from "heart failure" are due to the ventricle passing into fibrillation. When the auricle passes into fibrillation the effects are not so serious, for the auricle is not essential to the circulation, and auricular fibrillation may last for hours in animals without serious consequences. Fibrillation of the auricle may be induced by the same poisons as cause that of the ventricle, and he has seen it occur in dogs from stimulation of the vagus. Auricular fibrillation is a common form of heart irregularity in man, in fact, is much the most common cause of serious and prolonged irregularity. The characters of this irregularity as seen in man are: (1) very irregular pulse, the strength of successive beats bearing no relation to the preceding pause, and (2) disappearance of all trace of auricular act-



ivity in the jugular, liver, apex and esophageal tracings, and in the electrocardiogram. In mitral stenosis, the systole of the auricle is indicated by a murmur (presystolic) but when fibrillation is present this also disappears. This condition of auricular inactivity was detected and first described by Mackenzie, and has been known by many names, such as, *delirium cordis*, nodal rhythm, ventricular form of the venous pulse, *pulsus irregularis*—(perpetuus) but will, it is hoped, be known in the future, by its essential feature, as auricular fibrillation. The diagnosis may be made with a fair amount of accuracy from the radial pulse alone. No other condition is known in which the same degree of irregularity, and the same variation in the strength of the contractions with respect to the interval preceding them, are met with. An absolutely certain diagnosis, however, requires the use of the jugular tracing. As regards the treatment of the condition, no disease of the heart responds so satisfactorily to digitalis and its allies as auricular fibrillation. In fact, were it not for its almost specific action in fibrillation, it may be questioned whether the series would enjoy the reputation it has in heart disease. But not all cases of fibrillation react thus brilliantly to digitalis: the slow, irregular heart in which fibrillation is accompanied by impaired conditions is comparatively little improved. The condition which responds to digitalis most readily and satisfactorily is the rapid, irregular heart of old rheumatic disease, in which fibrillation is present along with good conductivity through the bundle of His, and a readily responding ventricle. Here digitalis reduces the pulse rapidly from 120 or 150 to 50 or 70, and as the pulse falls the whole of the symptoms improve. He warns, however, concerning treatment of fibrillation with digitalis, that an attack of this condition may, in certain circumstances, be precipitated by the drug.

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**Laryngeal Tuberculosis:** Geo. B. Wood, in the *Therapeutic Gazette* for May believes that the treatment of laryngeal tuberculosis may very properly be divided into two classes—the palliative and the curative. We must remember, however, that at times the best palliative measures are those which produce a cure, and not always of the whole lesion, but of such certain portions which, from their position, are of great annoyance to the patient. When we decide upon the radical procedure the treatment becomes chiefly surgical, and the only method of effecting a positive and permanent cure, is the eradication of the diseased area. The number of drugs which have been used for the treatment of laryngeal tuberculosis is, as in other diseases which have no specific remedy, extremely large. The greater number of those recommended are probably of little value, but some of them have been so highly recommended that we cannot lightly overlook their claim. His own experience, with lactic acid has led him to discard it, chiefly on account of the pain associated with its use. He has had but little experience with methylene blue, but the various silver salts are useful for combating secondary pyogenic infections, and their stimulating action is sometimes of use in hastening the healing process following cauterization or other operative procedure. In cases of advanced laryngeal tuberculosis, when the one object is to relieve the pain and when the hope of cure is gone, we must finally come to that one resort of the physician when faced with physical suffering—morphin. The contraindications for its use lie not so much in the laryngeal disease as in the pulmonary involvement. He directs attention to several important facts. First, the diagnosis of primary tuberculosis of the upper respiratory tract is an exceedingly difficult one without the aid of the microscope. Second, the superficial lymphatic structures of the pharynx are by far the most common seat of primary and secondary tuberculous lesions. Third, primary tuberculous lesions occurring in the other portions of the nose and throat, except the tonsillar tissue, are exceedingly rare, but do occur. Fourth, the

successful treatment of tuberculosis in the upper respiratory tract is essentially surgical, its object being the eradication of the diseased tissue, preferably by methods which do not leave open lymphatics and blood vessels, the actual cautery to his mind, being the best instrument.

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**Myocardial Disease:** In the *Monthly Cyclopaedia* for May, P. Y. Eisenberg considers myocardial disease, stating that in approaching the subject of heart disease, the medical attendant is too apt to grasp and search for the more concrete forms of the affection to the neglect of the other forms whose presence is not so well marked. He is ever alert to discover murmurs and locate lesions, and carefully considers the history of antecedent disease. But in the case of myocardial disease the physician is left somewhat in the dark, as there are no invariable phenomena that point unmistakably to the existence of pathological conditions in the heart muscle. There is, he asserts, no definite form of treatment for myocardial degeneration excepting dietetics and hygienic measures. Structural changes in this progressively fatal mlaady, if it be diagnosed before too great progress has been made, may be held in abeyance by a simple and well regulated manner of living, a quiet life with gentle indulgence in exercise and light gymnastics, avoidance of gradients, etc. Excitement and sudden exertion of any kind must not be indulged in. Diet should be of the most simple kind, yet nutritious, and after any exertion or excitement it should be very light. Better four light meals daily than three full ones. Any article of diet that creates puffiness or fulness should be avoided, and constipation ought not to be permitted. As for drugs, there are none of much value. If the patient be anemic, iron and arsenic are of value and if arteriosclerosis exists, nitroglycerin and amyl nitrite may prove of service. For the anginoid attacks accompanying coronary disease, anodynes may be necessary to relieve suffering and distress. The use of digitalis is of doubtful propriety, and if given should be used cautiously in small doses at the start. Sir William Jenner's favorable view of the existence of fatty degeneration of the heart, when associated with arteriosclerosis, removes to some extent the sombre outlook: he claims that this form of structural change is a preservative lesion, inducing a due proportion between cardiac strength and arterial resistance, reducing the former when there is great brittleness of the vessels.

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**High Blood Pressure:** Oliver T. Osborne in the *N. Y. Medical Journal* for June 10 believes that syphilis and the various infectious febrile diseases are only incidental causes of high blood pressure. Year by year the patients attacked by apoplexy are of younger age, weakness of heart is more in evidence and Bright's disease increasing. This state of affairs is largely due to the general stress of modern life, including a great variety of sensory irritations, such as slight noise, shock and fear. Old and young alike are engaged in both physical and mental competition. We eat too much meat, and drink too much water. While less alcohol is indulged in than formerly—more tea and coffee are consumed. Hence more caffein is taken into the system and this is a cerebral irritant. The blood pressure may be lowered by means of rest and a milk diet, and alcohol also has this effect by flushing the peripheral circulation. Normal blood pressure is principally the result of the action of the suprarenals and to a less extent of the pituitary body, while the thyroid and most of the secretory glands have the effect of lowering the pressure. So anything that would tire out or expand the thyroid would tend to raise the blood pressure. With abnormally high pressure we would have such symptoms as increased urination, flushings, etc., indicating the beginning of cardiorenal disease. With the blood pressure too high, what should we do? Not too much.



The pathological process could be arrested if taken in time. The patient should be ordered to take rest, the quantity of meat reduced, and intestinal putrefaction looked after. Frequently small amounts of thyroid, not more than two or three grains a day, will be of service, or we might give a little nitroglycerin: clinically 1/200 or 1/400 grain might be sufficient, as we should give just enough to relieve the symptoms. The reason why iodine has been so long in repute in these conditions is simply because it has the effect of stimulating the thyroid, so that it will reduce the blood pressure to normal. As to raising the blood pressure, this can not be done if neurasthenia is present. As an actual remedy digitalis is to be relied upon, and strophanthus is useful in acute trouble. He would do away with all other cardiac drugs.

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**Tablets:** Geo. F. Butler in the *Medical World* for June, states that the ideal method of using drugs is to use the single remedies according to indications, building up the prescription in every case according to the peculiar needs of the patient who is to be treated. But we must not forget that there are some drug combinations which, while they may seem a little like "shotguns," really have a reason for their existence. He examines some of the remedies which it has been asserted should never be made into a tablet or pill. As to chloral, while he is not partial to this remedy, believing that there are safer and equally efficient hypnotics, tablet makers usually compress it without excipients and in this form it is no more likely to decompose or become insoluble than in crystals, provided it is kept in closely stoppered bottles. He is quite sure that any well made chloral tablet, no matter how old, will go into solution within a minute or less. The bromids of potassium and sodium are almost equally soluble, and while by no means ideal for tablet administration lose nothing of their efficiency when thus prescribed. The same is true of antipyrin and ammonium chlorid. Salol used to be held up to execration as an awful example of remedies which should never be given in tablet form; but the method of manufacture has been improved within recent years, and now we have salol tablets which disintegrate in the presence of a little moisture almost instantly. Thus given, salol is just as effective as when given in powder or capsule. Sodium salicylate does not make a very readily soluble tablet, but if well made, the tablet will dissolve satisfactorily. Aspirin, another salicylate, makes an ideal tablet. Much has been said derogatory of nitroglycerin pills and tablets, but in spite of it all he asserts that a well made nitroglycerin (glonoin) granule, is just as active, just as stable and one hundred per cent more convenient than the spirit itself. He has invariably found the remedy active and convenient. The freshly made Blaud pill is, of course, ideal, if well made, but manufacturers now sell a soft-mass Blaud, which is right in dose and pharmaceutically nearly perfect. Theoretically, volatile substances should not be used in tablets, but these are largely used as carminatives. The Council on Pharmacy and Chemistry of the A. M. A. is to be commended for showing that phenol (as in bismuth and phenol combinations) is unsuited to the tablet form.

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**Digipuratum in Heart Disease:** Wm. F. Boos, L. H. Newburgh and H. K. Marks in a paper published in the April issue of the *Archives of Internal Medicine*, discuss the great differences observed in the pharmacological strength of digitalis leaves and their preparations. The efficiency is said to depend greatly upon the soil, the gathering season, the method of collecting and drying the leaves and the methods used in preserving the dried product. For a time it seemed as if the pure active principles of digitalis would be reliable substitutes for the galenical preparations, but it was soon evident that neither digitalin nor

digitoxin alone could produce the true digitalis effect obtainable from the leaf preparations of known strength. As the fluid preparations do not retain their original strength, so readily as the dry, standardized products are preferable. Digipuratum, a dry digitalis extract, was found free from the harmful digitonin and 85% of the bulky and inactive matter. The drug is standardized by means of the frog experiment so as to be equal in strength to the equivalent amount of potent leaves, this strength being uniform.

Digipuratum was employed extensively by the authors in the medical service of the Massachusetts General Hospital. Eight cases are quoted and tabulated, showing the interesting features. The diuresis was efficient in all cases and a marked effect on the pulse rate was usually present. One case was sent to the hospital in a moribund condition but reacted very quickly to the drug, so that compensation was reestablished in a week. The digipuratum was usually given in the form of treatments of 12 tablets each, and while in some cases the first treatment gave little or no results, the second was always very efficient. Good results may often be obtained by combining the medication with venesection, the removal of fluid by tapping, or by combining the digipuratum with other drugs, such as diuretin or apocynum.

Digipuratum has now been used in the Massachusetts State Hospital for over a year and more than 180 cases of primary heart disease or secondary cardiac involvement have been treated with it. The effect on the urinary output has been very prompt in most instances. There was not a single case of vomiting nor diarrhea; in fact, the vomiting of a number of cardiac cases at entrance was promptly stopped by digipuratum. Cumulative poisoning was never observed. One of the early patients, a boy of 16, was given 106 tablets in six weeks; at no time was there any suggestion of digitalis poisoning. In one or two instances the house officers were made uneasy by sudden drops of 40 or more beats in the pulse rate, but no disagreeable consequences followed in any case. It must be remembered, naturally, that digipuratum is a digitalis preparation, but the tendency to produce poisoning is much diminished so that it is possible by means of this drug of reliable strength to push digitalis therapy in a manner hitherto unknown.

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**Ergot:** In *Merck's Archives* for May, Alfred T. Livingston asserts that in therapeutic application the specific and peculiar function and province of ergot is to restore to or toward the normal that contractile tissue of the circulation or hollow viscera which has in some manner become deteriorated to the extent of failure to properly functionate in response to the accustomed stimuli. The blood pressure effect in such case is merely incidental to this specific action. The action of the drug upon the normal fiber is a thing quite distinct from the action upon the abnormal fiber. With the former, the clinician has practically no relation nor concern, since in therapeutic use the drug applies itself only to the abnormal fiber, and the physiological effects upon the normal fiber of the patient do not appear. After thirty years of strikingly satisfactory experience with ergot, he is unwilling to accept statements of the futility of the drug in an indicated case unless he knows that a proper solution has been properly applied in proper quantities to the case. The solution which he has always used is one dram of solid extract to one ounce of sterilized distilled water, and this makes as dense a solution as he thinks desirable to introduce under the skin or into the muscular tissue. He believes that the efficacy of this solution is due to the unbroken combination which the water dissolves. Whatever may have been demonstrated as to the toxic or physiologic effect of ergotoxin or any other active principle of ergot, he has yet to be convinced that the full therapeutic power of ergot resides in any of them. He believes that one of the most important and extensive fields of application of



this very remarkable drug, is as a circulatory stimulant and as the correcting of disturbed states of the circulation, or restoring the equilibrium of blood distribution, is fundamental to the relief and cure of a great variety of diseases, he believes ergot to be the specific medicinal corrector of the abnormal contractile tissue of the blood vessels.

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**Zinc Phosphid:** William Francis Waugh in the *Medical Record* for May 27 reports on the value of phosphid of zinc in herpes zoster and suggests its use in acute poliomyelitis. He states concerning herpes zoster that the textbooks are not remarkable for the copiousness or the clearness of the data they afford on the treatment of this painful malady; yet it is one for which we possess a remedy whose efficiency is so certain and uniform that we may make it the starting point for further reasoning. He refers to the phosphid of zinc. In one case, treated in 1890, treatment was ineffective until the patient was given zinc phosphid in doses of a centigram, an hour before each meal. Within two days the attack was under control and recovery was speedy and uninterrupted. At that time we looked on zoster as the peripheral manifestation of disease affecting the corresponding spinal roots, without a thought of its possible infectious nature. But if zoster is an infection, the application of zinc phosphid must be explained otherwise, and the field of its possible utilization is immensely widened. It seems legitimate to give this remedy a trial in acute anterior poliomyelitis. Here the great difficulty is that it is purely experimental. We do not know exactly what the remedy does, or may do, here or even in health. The control exerted by zinc phosphid over herpes zoster finds no explanation in any data furnished by the textbooks on therapeutics. That this control is nevertheless real may be proved by any one who will put it to the test of actual clinical application. That alone can determine whether this power extends to the disease known as acute anterior poliomyelitis, and the experiment is legitimate. Zinc phosphid should be administered in doses not exceeding a centigram (gr. 1/6) for an adult, and one hour before meals, so as to keep it away from the influence of the gastric juice. As a sedative in this group of affections gelseminin far exceeds morphin, especially in that the former tends to favor elimination instead of locking up toxins in the body.

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### Book Reviews.

The Anatomic Histological Processes of Bright's Disease and Their Relation to the Functional Changes. By Horst Oertel, Director of the Russell Sage Institute of Pathology, New York. Octavo of x and 227 pages, with 40 illustrations and six lithographic plates. Cloth, \$5.00 net. W. B. Saunders & Company, Philadelphia and London, 1910.

The volume consists of five lectures delivered in 1909 to the Resident Staff of the New York City Hospital by the Director of the Russell Sage Institute of Pathology. The presentation in the form of lectures is of great advantage to the reader, since it permits a concise and rapid summarization of views and of facts and a direct statement of the lecturer's own individual beliefs and conclusions. But the condensation which is so advantageous to the reader renders reviewing difficult. In the case of the volume before us a survey which would give an adequate expression of its contents would amount practically to a reprint. We can, therefore, hope only to point out the ground covered in the various lectures, and before proceeding to that it is necessary to mention the author's preface. We find our excuse for referring to this part of the book in what President Eliot has said: "No part of a book is so intimate as the Preface. Here, after the long

labor of the work is over, the author descends from his platform, and speaks with his reader as man to man." The preface, in most medical books, is merely the author's excuse for having added another to a number already too great. In Oertel's volume it is an important and readable statement of the author's beliefs upon certain unfortunate tendencies in the present day teaching and practice of pathology. In addition it explains the viewpoint and the object which underlie the lectures.

So much for the soup. Now for the meat. The first lecture, "Historical Introduction and Classification," traces the development of our knowledge of the pathology of the kidney, defines and limits that portion of kidney pathology which is to be discussed, and gives the author's classification of those processes, "non-specific, haematogenous, non-purulent inflammations of the kidney," which he includes under Bright's disease. Anyone who attempts to classify nephritis in a way that shall be both inclusive and exclusive enough has set for himself a difficult task and cannot expect entire agreement upon the part of everyone else. If existing classifications of Bright's disease are as unsatisfactory to him who studies pathology as to him who teaches it, Oertel's classification is to be commended. It is not so apt as others to leave the impression that any given form of nephritis is a distinct, separate, finished process which involves a particular structural element of the kidney. We believe it worth while to let Oertel's classification follow in some detail:

A---Nephritis:

I. "Nephritis simplex" (simple nephritis). "Cloudy swelling, inflammatory oedema, and serous exudation."

"Nephritis prolifera" (proliferative nephritis). The adjective here referring to the proliferation of the tubular epithelium, considered inflammatory by the author.

II. "Nephritis degenerativa et exudativa" (degenerative and exudative nephritis). Degeneration and necrosis of fixed cells; cellular exudation.

III. "Nephritis degenerativa et productiva" (degenerative and productive nephritis). A transitional stage, in which proliferation of fixed tissues begins to predominate over the degenerative phenomena.

IV. "Nephritis productiva" (productive nephritis). The end stage, in which the formation of connective tissue and the fibrosis of that tissue predominate.

B—"Non-inflammatory lesions of the kidney, occasionally, but wrongly, grouped as nephritis":

I. "Induratio cyanotica renum" (cyanotic induration). "Resulting from nutritive disturbances as the result of long-continued stasis."

II. "Atrophia vel sclerosis renum: The senile atrophy and sclerosis of the kidney."

We are inclined to agree with the author in his belief that such a nomenclature, based upon the nature of the pathological process present, gives a better idea of the changes which occur in the kidney than does the use of terms which attempt to indicate the duration of the process or its limitation to certain structural elements.

The second lecture reviews the structure and the physiology of the normal kidney.

The remaining three lectures then take up, rapidly, step by step and in detail, the structural changes which occur in the kidney in Bright's disease. We can do little more than give the headings, although there are many valuable statements upon certain general pathological processes in addition to such as pertain to the special pathology of the kidney. Third lecture: "The Degenerative and Exudative Features of Nephritis." Fourth lecture: "The Results and Terminations of Degenerative and



Exudative Nephritis. Productive Changes in the Kidney." Fifth lecture: "Productive Nephritis. Changes in Other Viscera. Oedema."

Important from the standpoint of pathological physiology is Oertel's view that the kidneys of productive (chronic interstitial) nephritis "represent entirely reconstructed organs" in which "far-reaching functional modifications necessarily develop, vastly different from anything ever observed under physiological conditions." In the production of rise of blood pressure, heart hypertrophy, arterial changes, serous membrane alterations and edema several factors may act, certain ones primarily upon the kidney and secondarily upon the other organs; others, notably the toxic element which is the basic factor in the kidney change itself, acting concomitantly upon the circulatory and urinary structures. Thus, the toxic factor which inaugurates the pathological process in the kidney initiates at the same time changes in the myocardium, the blood vessels, the serous membranes and the lymph channels. With progressive renal involvement secondary factors come to act upon the already changed cardiovascular and lymphatic systems.

The final lecture is followed by 13 pages of "Notes and References," in which the more important literature is given. The literature references would be more usable if each were preceded by the author's name. The classification is summarized in a two page appendix. An index of authors and a subject index follow.

To the fact that the lectures have been published "practically in the form of the stenographic report" may be due the few grammatical errors which have been encountered: the use of a singular verb instead of the plural, of adjectives in place of adverbs, and of a complicated double negative sentence whose meaning is not quite clear ("This . . . cannot be a retained normal urinary product, . . . for circulatory changes occur at an early date when retention of urine and solids is not only not diminished, but increased" (p. 190. Fig. 28 (p. 94) should read Fig. 25. In our edition of Rokitsansky's *Pathologische Anatomie* the author's name is spelled with a "c" before the first "k" (p. 11). The eminent chemist spelled his name van t'Hoff, not "von t'Hoff" (p. 33) correct in the authors index).

We have attempted to indicate the value of the volume. First, to the student of the morphology of disease, of the objective changes produced by disease. Even if one does not agree entirely with the author in the conclusions reached upon debatable general pathological problems one must admire his judicious exposition of both sides of controversial questions and the definiteness and clearness with which he states his own opinions. Secondly, to the clinician, to the man more directly interested in the actual being or state of disease. A knowledge of the nature of the changes which occur in the kidney in nephritis, of the interrelationships of the alterations in the various structural elements of the organ, and of the sequence of events which the diseased kidney may and must show must be helpful. The book is valuable to the pathologist. It is of even greater value to the clinician intelligent enough to wish to visualize the tissue changes which underlie a condition that he is trying to treat.

The book, as a book, is worthy of its subject matter. The language is direct and concise, the style that of the careful lecturer. A pleasing and durable exterior covers paper of the highest quality. The type, large, clear and easily read, is free of errors. Of the 46 illustrations six are beautifully executed colored plates. The rest are excellently reproduced photomicrographs. Of the latter one must say more than that they are excellently reproduced. They are well chosen in the first place, so that they really illustrate something, and in the second place they are from good negatives in the first place—if one may be permitted the perpetration of a bull. For a volume of 227 pages the price is high, due, no doubt, to the illustrations and the mechanical

excellence of the book. If, as the preface says, "the generosity of the Trustees of the Russell Sage Institute made the publication possible" it is unfortunate that the generosity did not extend a bit further. The book is so valuable that an increased subsidy would have permitted the publishers to issue it at a price which would give it the distribution that it deserves.

O. T. S.

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Tuberculosis as a Disease of the Masses and How to Combat It. Prize Essay by S. Adolphus Knopf, M. D., New York. Seventh American edition, enlarged and revised with 64 illustrations. Price 25 cents, postage prepaid.

This excellent work should be read by all who are interested in the great fight on the white plague. The sufferers from the disease will find many points of inestimable value which will aid in producing a cure. The author's masterly style of writing can be understood by all. He lays particular stress upon home treatment, preventive measures, treatment in local sanatoria, and curability. There is no phase of the tuberculosis question which has been neglected in this small volume. The illustrations are of special value in that they make clear in the patient's mind the various means of helping the cure. This little book has done and will continue to do a great deal of good.

J. C. P.

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Golden Rules of Pediatrics. By John Zahorsky, A. B., M. D., with an introduction by E. W. Saunders, M. D. C. V. Mosby Co., St. Louis. Second edition, price, \$2.50.

This is a useful little book of 250 pages intended particularly for the general practitioner, giving aphorisms, observations and precepts in the science and art of pediatrics, rules of diagnosis and prognosis, and the essentials of infant feeding and treatment. The formulary contains a number of useful prescriptions, several, however, appear unnecessarily complicated to one trained in the use of prescriptions containing but a single drug.

A. F. F.

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A Handbook of Practical Treatment. In three volumes. By 79 eminent specialists. Edited by John H. Musser, M. D., Professor of Clinical Medicine, University of Pennsylvania; and A. O. J. Kelly, M. D., Assistant Professor of Medicine, University of Pennsylvania. Volume II: Octavo of 865 pages, illustrated. Philadelphia and London; W. B. Saunders Company, 1911. Per volume: cloth, \$6.00 net; half morocco, \$7.50 net.

This, the second volume of this new work on the treatment of disease, maintains the high standard of the first volume of the series, issued but a short time ago. The opening subject, that of diseases of the cardiovascular system, is most admirably treated by Sir Clifford Allbutt. The general principles of cardiac therapeutics introduces the subject, and the various diseases of the heart, acute and chronic, are practically presented. About 25 pages are devoted to the therapeutics of digitalis and its allies, the advice given being most judicious and complete. As to the use of digitalis in children, he differs somewhat from those who prefer strophanthus here, stating that "in the valvular diseases of children and adolescents, in whom dangerous oppression by the vagus is scarcely to be apprehended, it is notably efficacious." Typhoid fever with its surgical complications cover nearly 100 pages and Hobart A. Hare contributes the article upon pneumonia in a most satisfactory and practical summary of the subject. He aptly states that "the patient, his friends, and the physician are all so anxious to see recovery speedily and certainly ensue, that



they are far too much inclined to resort to active medication when none is needed"; and again, he cautions against the excessive use of drugs, being firmly convinced that some cases of cardiac irregularity met with in the course of this disease are the result of overstimulation, due to too much digitalis and not to the effect of the malady. Diphtheria, scarlet fever, measles and r  theln, are treated by Geo. H. Weaver, and cerebro-spinal meningitis by Lewellys F. Barker, who also writes upon plague and yellow fever. In the closing article upon animal parasites David Riesman rather insists on the generally accepted rule that castor oil should not be employed as the expellant after the use of male fern, believing it the wisest course. Each subject is amply considered by the very best authority, and the volume like its predecessor is a most valuable work on treatment.

J. B. M.

Gonorrhea in the Male. A Practical Guide to its Treatment. By Abr. L. Wolbarst, M. D., Consulting Genito-urinary Surgeon, etc. Published by The International Journal of Surgery Co., New York. 1911.

This book contains 175 pages and is printed in large type on good paper. The style is excellent and the text is easy reading. The author makes a plea for more conservative treatment and greater gentleness, giving facts instead of theories. Especially good is the chapter on diagnosis. The treatment is based on the most modern practice. This little book is not intended for the specialist but the for the general practitioner and the beginner. It is not a prescription textbook but a guide and ready handbook.

F. O.

State Board Questions and Answers. By R. Max Goepp, M. D., Professor of Clinical Medicine at the Philadelphia Polyclinic. Second edition revised, octavo volume of 715 pages. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, \$4.00 net; half morocco, \$5.50 net.

The second edition of this work shows numerous additions, and revisions of many of the answers to the questions, so as to bring them up to date in those cases in which this has become necessary by the advance in medical knowledge. The book is arranged under headings corresponding to the main divisions of medical study, e. g., physics, chemistry, anatomy, etc. Under various subheadings are given questions which have been selected from State board, medical school and hospital examinations, and in addition some that the author considers worthy of inclusion. Each question is answered in as brief and succinct a manner as possible.

An objection to a similar book has recently been made in these columns in that it lends itself too easily to the process of cramming for examinations. If rightly used, however, as an adjunct to more thorough reading it, no doubt, has its field of usefulness and in this respect can be recommended.

W. H. W.

### Acknowledgments.

Progressive Medicine. Volume II, June, 1911. Edited by Hobart Amory Hare, M. D., assisted by Leighton F. Appleman, M. D. Lea & Febiger, Philadelphia and New York.

Hospital Management. Edited by Charlotte A. Aikens, formerly Superintendent of Columbia Hospital, Pittsburg, etc. 12 mo. of 488 pages, illustrated. Cloth, \$3.00 net. W. B. Saunders Co., Philadelphia and London. 1911.

What to Eat and Why. By G. Carroll Smith, M. D., Boston, Mass. Octavo of 310 pages. Cloth, \$2.50 net. W. B. Saunders Co., Philadelphia and London. 1911.

Practical Cystoscopy and the Diagnosis of Surgical Diseases of the Kidneys and Urinary Bladder. By Paul M. Pilcher, M. D., Consulting Surgeon to the Eastern Long Island Hospital. Octavo of 398 pages, with 233 illustrations, 29 in colors. Cloth, \$5.50 net. W. B. Saunders Co., Philadelphia and London. 1911.

Spirochaetes. By W. Cecil Bosanquet, M. D., Fellow of the Royal College of Physicians, London. Octavo of 152 pages, illustrated. Artistically bound, \$2.50 net. W. B. Saunders Co., Philadelphia and London. 1911.

A Textbook of Medical Diagnosis. By James M. Anders, M. D., Professor of the Theory and Practice of Medicine and of Clinical Medicine, and L. Napoleon Boston, M. D., Adjunct Professor of Medicine, Medico-Chirurgical College, Philadelphia. Octavo of 1195 pages, with 443 illustrations, 17 in colors. Cloth, \$6.00 net; half morocco, \$7.50 net. W. B. Saunders Co., Philadelphia and London. 1911.

Studies in Cardiac Pathology. By George W. Norris, M. D., Associate in Medicine at the University of Pennsylvania. Large Octavo of 233 pages with 85 original illustrations. Cloth, \$5.00 net. W. B. Saunders Co., Philadelphia and London. 1911.

Education and Preventive Medicine. By Norman Edward Ditman, Ph. D., M. D. The Columbia University Press, New York. 1911.

Report of the Department of Health of the City of Chicago for the years 1907-1910. W. A. Evans, M. D., Commissioner of Health. Chicago, 1911.

Proceedings of the Canal Zone Medical Association for the half year, April, 1910, to September, 1910.

Eclectic Medical College Bulletin. Sixty-seventh Annual Announcement, for 1911-1912, with List of Matriculates and Graduates for 1910-1911.

Report of the Poliomyelitis Committee of the Medical Association of the District of Columbia, Epidemic 1910.

A Report on Hemoglobinuric Fever in the Canal Zone. A Study of its Etiology and Treatment. By W. E. Deeks, M. A., M. D., and W. M. James, M. D.

Public Health and Marine-Hospital Service of the United States: Reprint from Public Health Reports Nos. 57, 60 and 61. Public Health Reports, Vol. XXVI, Nos. 22 and 25.

University of Michigan Eighteenth Summer Sessions. Abridged announcement. 1911.

Reprints by: Arthur MacDonald, Washington, D. C.; Grover W. Wende, M. D., Buffalo, N. Y.; William Seaman Bainbridge, A. M., Sc. D., M. D., New York City; E. H. Martin, M. D., Hot Springs, Ark.; S. H. Blodgett, M. D., Boston, Mass.; E. G. Ballenger and O. F. Elder, Atlanta, Ga.; Wm. F. Amos, Portland, Ore.; and O. N. Williamson, London, Eng.

Rush Medical College Sixty-ninth Annual Announcement. The University of Chicago.



Public Health and Marine-Hospital Service of the United States. Public Health Reports Volume XXVI, No. 27. Reprint from Public Health Reports No. 62.

Reprints from the Proceedings of the Rochester Academy of Science. Albany Medical College Register of Students 1910-1911. Announcement for session 1911-1912.

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### Correspondence.

June 17, 1911.

*To the Editor of The Cleveland Medical Journal:*

My attention was recently drawn to an editorial in the Cincinnati Lancet Clinic regarding the recent meeting of the Ohio State Medical Association in Cleveland. I thought perhaps the readers of the *Journal* might wish to know a few facts which this caustic little Cincinnati publication seems to ignore.

In the first place, the registration, instead of being 500, which the Lancet Clinic reports, was between 800 and 850, and between 200 and 300 were unable to register because of inattendance of the registration officer of the Association, thus making this meeting probably the largest in point of attendance of any thus far held by the Ohio Association. The programs were sent to Cincinnati by mistake; this was the error of a printer in Columbus and the local Committee on Arrangements had nothing to do with it. Our aged Cincinnati also thought the exhibits were too greatly restricted, but the Committee on Exhibits had intentionally limited the exhibitors to those whose products are recognized by the Council of Pharmacy and Chemistry of the American Medical Association. It would seem that if we have such a Council, working toward the best ends and highest ideals in medical preparations, that we should support it. I was much amused in this connection, in looking over the list of advertisements in the Cincinnati Lancet Clinic, to find that these consisted largely of preparations not recognized by the Council and which we did not permit to be shown at the Cleveland meeting. In fact, 75% of the advertising space of the Lancet Clinic was so taken up. If this is clean medical journalism, I fail to recognize it. Furthermore, in spite of this restriction, there were more exhibitors at this meeting than at either the Toledo, Cedar Point or Columbus meetings.

The editorial, in fact, was bristling with animosity: the Cleveland daily papers, clinics, House of Delegates, meeting place—which is by the way, the handsomest auditorium in the State—all came in for their share of cynical comment. Since we believe the editorial in question will be ignored by all who know the facts, the above may help to place the subscribers of this *Journal* on the right track regarding the accuracy of statement of the Cincinnati Lancet Clinic. Any so-called voice of the people, and especially one purporting to represent a branch of science seeking to attain the ideal of accuracy and fairness, should know that truth is above all else to be desired.

F. C. H.

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*To the Editor of the Journal:*

We have had some difficulty in securing suitable material for the preparation of antigen for the Wassermann reaction, and desire to obtain a liver from a syphilitic fetus or from an infant who has died with congenital syphilis.

If some fellow practitioner who may secure such material would

communicate with us and let us have the body in a fresh state, or the liver preserved in 95% alcohol, we should appreciate it very highly. We should be glad to reimburse him for his trouble in securing such materials.

R. DEXTER,

C. L. CUMMER.

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### Medical News.

**W. T. Corlett** has removed his office to 3618 Euclid Ave.

**Committee on Medical Practice of the Academy of Medicine of Cleveland:** We understand that the work of this committee is progressing satisfactorily and that it will report to the Council in October and to the Academy in November. In October the regular meeting of the Academy is to be devoted to a symposium on Contract Medical Practice and Dispensary Abuse.

**The Erie County Medical Society** met at the Court House, Sandusky, May 24. Wm. H. Humiston, of Cleveland, presented an excellent paper which was greatly enjoyed by all present and brought out the value of magnesium sulphate solutions introduced into the blood in septic conditions. Dr. Humiston's coming was sufficient stimulus to call out about one dozen members and thus awaken the Society which has been virtually dead since the election of officers in December, 1910. At this meeting resolutions were passed to be published in the *Cleveland Medical Journal* to contradict a news item which was published in the *Journal* of April, 1911, stating that the Society had died, not having a meeting since December, 1910, which was true. Outside speakers will be secured for future meetings with a view to revive the Erie County Medical Society.

**The Muskingum County Medical Society** held its regular meeting at Moxhalla Park, near Zanesville, on Wednesday afternoon, June 14. The following program was presented: 1. Constipation and Residual Feces and the Application of Mechanical Treatment, J. M. Rector, Columbus. 2. Diagnosis and Treatment of Intestinal Cancer, Wells Teachnor, Columbus. After the program there was a ball game and the attractions of the park were visited by the members, after which a chicken supper was served. A large attendance and an enthusiastic meeting helped to make a very enjoyable afternoon.

**P. Bruce Brockway, Toledo,** has left for a vacation trip through the Canadian Rockies.

**Thos. Hubbard, Toledo,** has returned from a three weeks' trip in the east.

**F. A. Leslie, Toledo,** will spend the summer at European clinics.

**C. N. Smith, Toledo,** was elected President of the Northern Tri-state Medical Society at the June meeting of the Society held in Toledo.

**I. O. Denman, Toledo,** at the recent meeting of the Northwestern Homeopathic Medical Society in Toledo, was made its president. Other Toledo men elected to office are B. W. Dawley, Treasurer; M. H. Parmelee, Necrologist; W. S. Walker, Secretary, and F. W. Maxwell, Censor.

**Sr. Vincent's Hospital, Toledo,** will in the immediate future erect



a \$70,000 nurses' home which will be modern in every respect, and will include a roof garden and an auditorium.

**Bernard Becker, Health Officer of Toledo**, has sent out a request that the people of that city "swat" the fly.

**Meetings of the Academy of Medicine of Toledo and Lucas County:** The General Meeting of the Academy was held Friday, June 2. The program was as follows: 1. Typhoid Contamination of Summer Drinks, Wm. Mck. Reed. 2. Summer Hygiene in Childhood, Anna G. Smith. 3. Summer Hygiene for Adults, B. Becker.

The Pathological Section met Friday, June 9. The program was as follows: 1. The Bacteriology of the Common "Summer Complaints," John T. Murphy. 2. The Pathological Lesions in the Common Gastro-Enteric Diseases of the Summer Season, C. O. Imoberstag.

The Medical Section met Friday, June 16. The program was as follows: 1. Some Modern Views of Infant Feeding; Harold J. Morgan; discussion opened by W. G. Dice and Ralph Stewart. 2. The Heroin Habit, Frank D. Ferneau; discussion opened by Louis Miller.

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### Deaths.

**J. M. Kerr**, Columbus, Ohio, died June 26, aged 47.

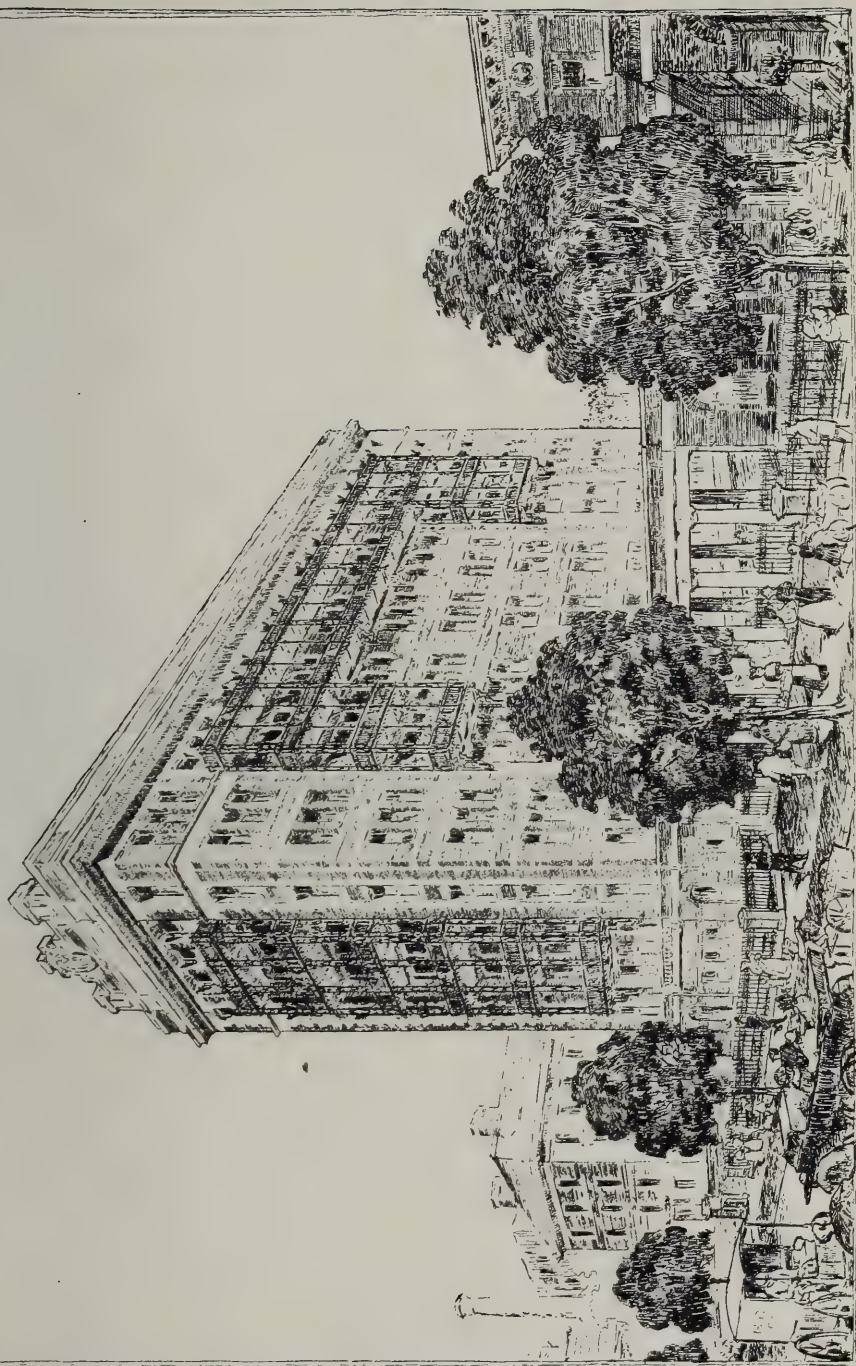
**J. Walden Pratt**, Marengo, Ohio, died June 13, aged 55.

**Benjamin B. Leonard**, West Liberty, Ohio, died June 15, aged 86.

**William H. Riker**, Versailles, Ohio, died May 27, aged 61.

**Eugene S. Judkins**, Evanston, Ohio, died June 13, aged 65.

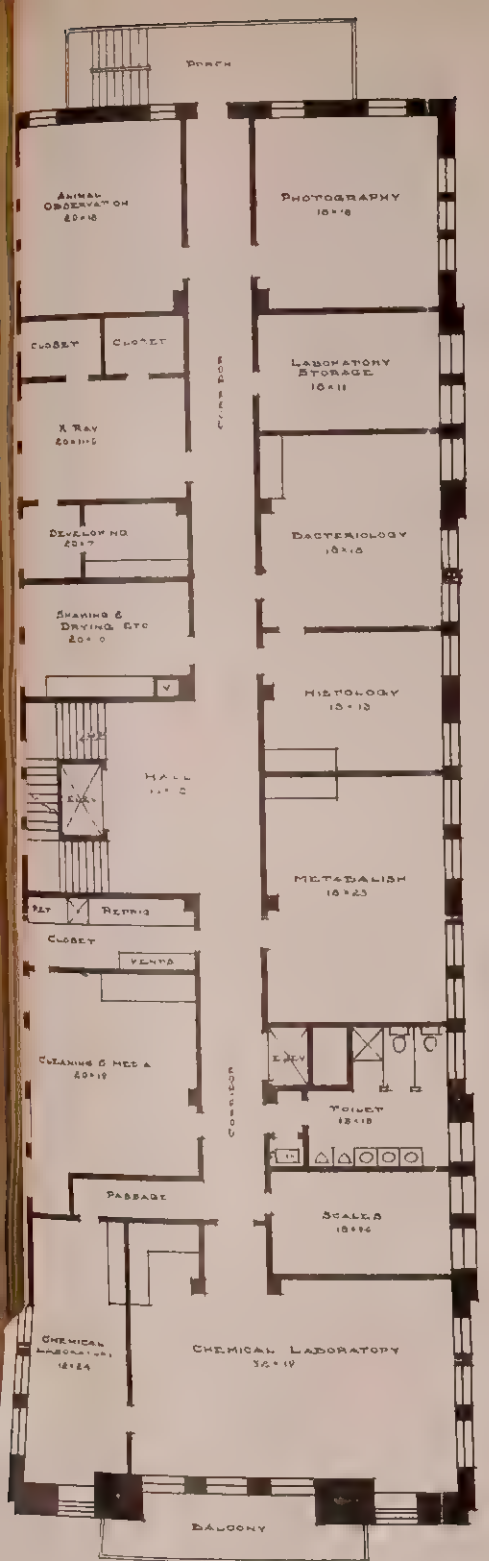
**William H. Nickles**, Cincinnati, Ohio, died May 29, aged 23.



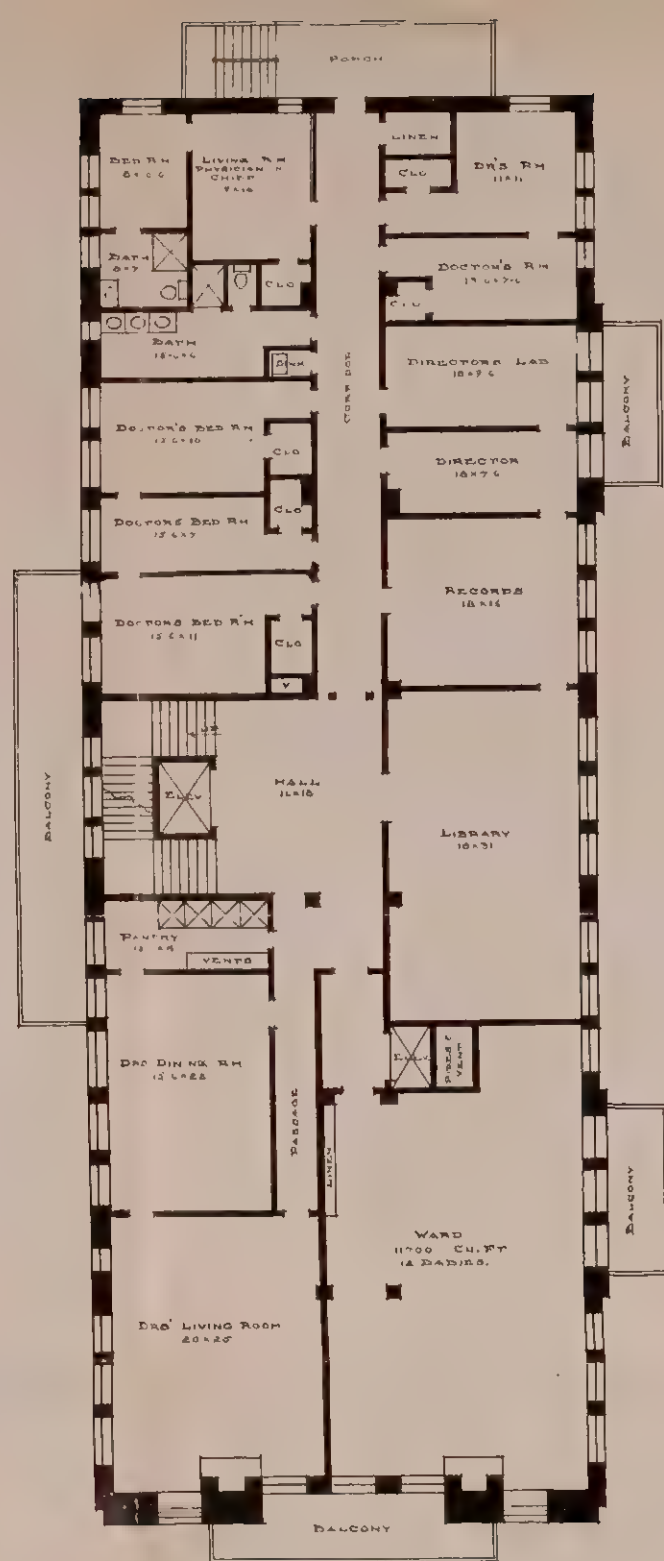
Elevation of Proposed Hospital of Babies' Dispensary and Hospital.



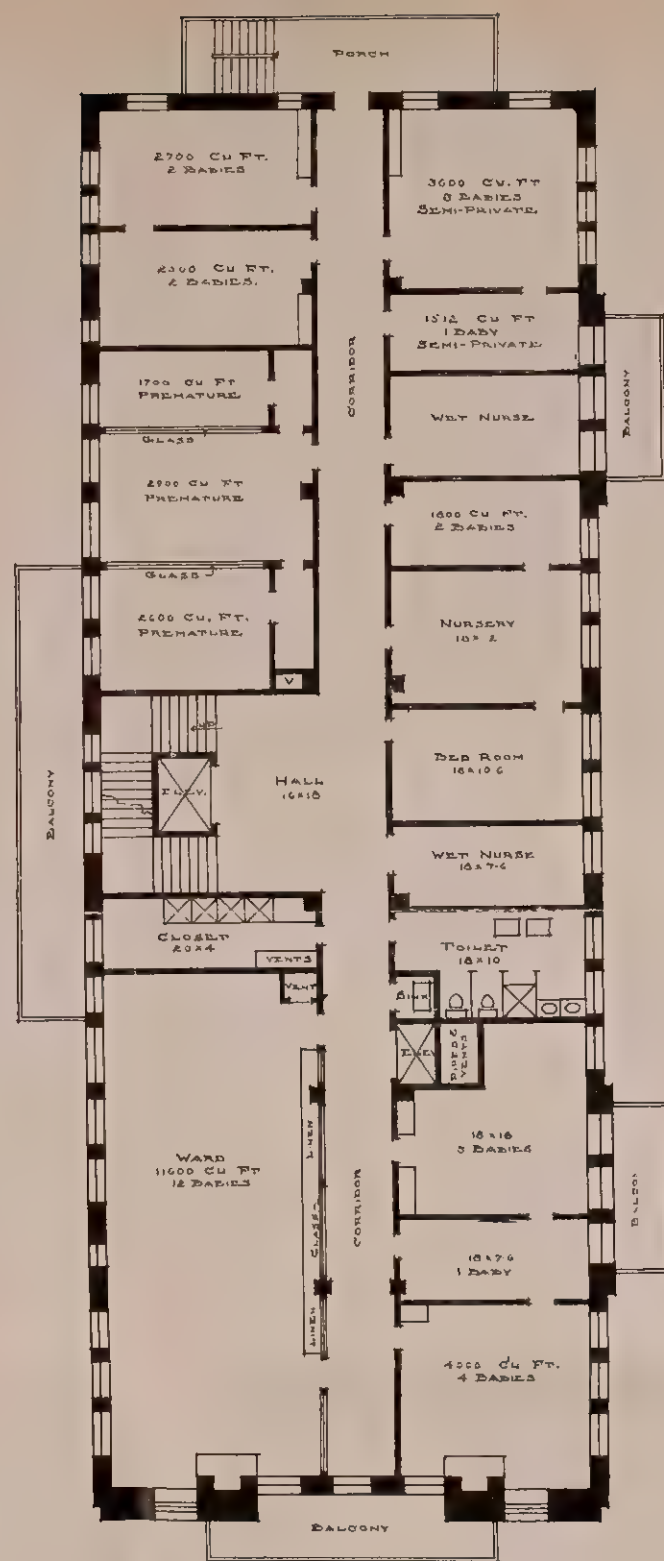




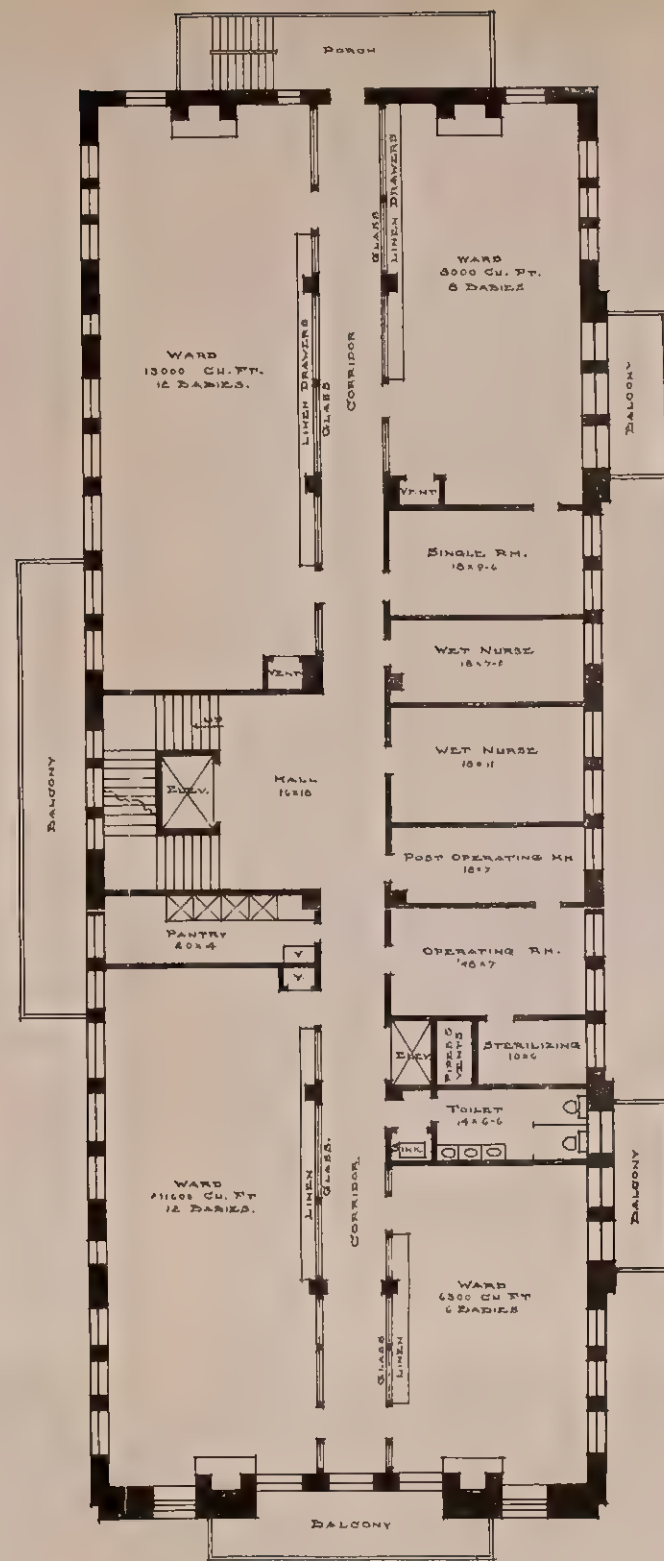
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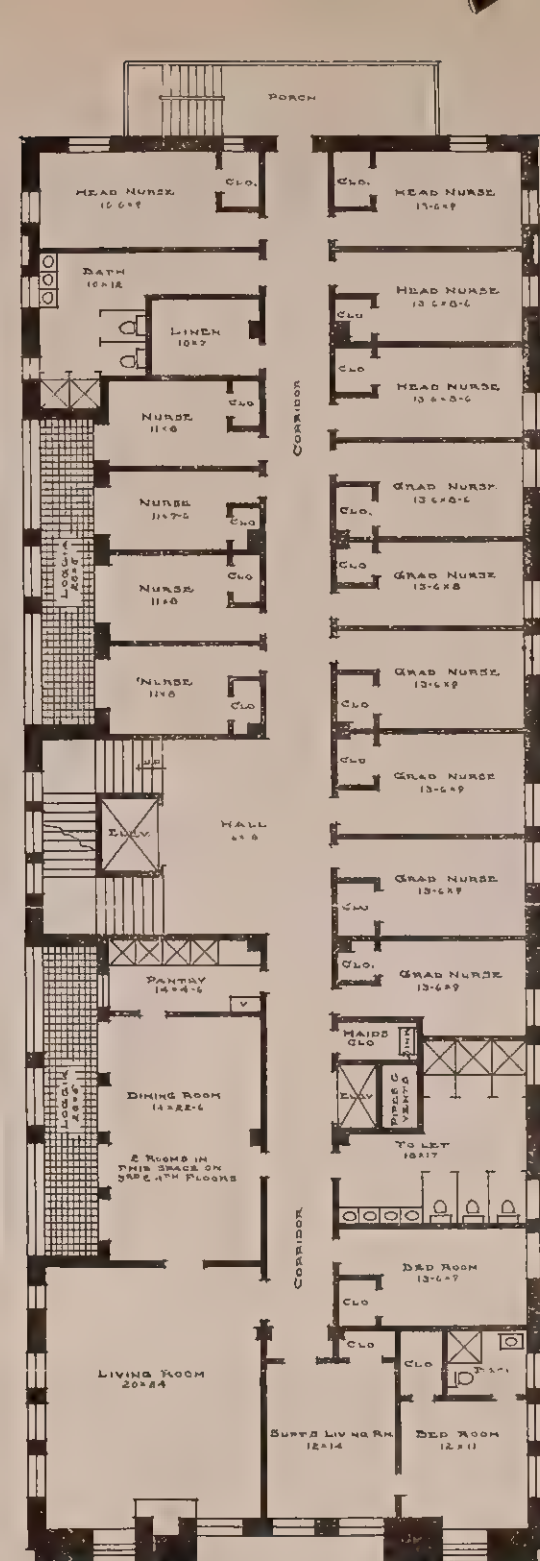
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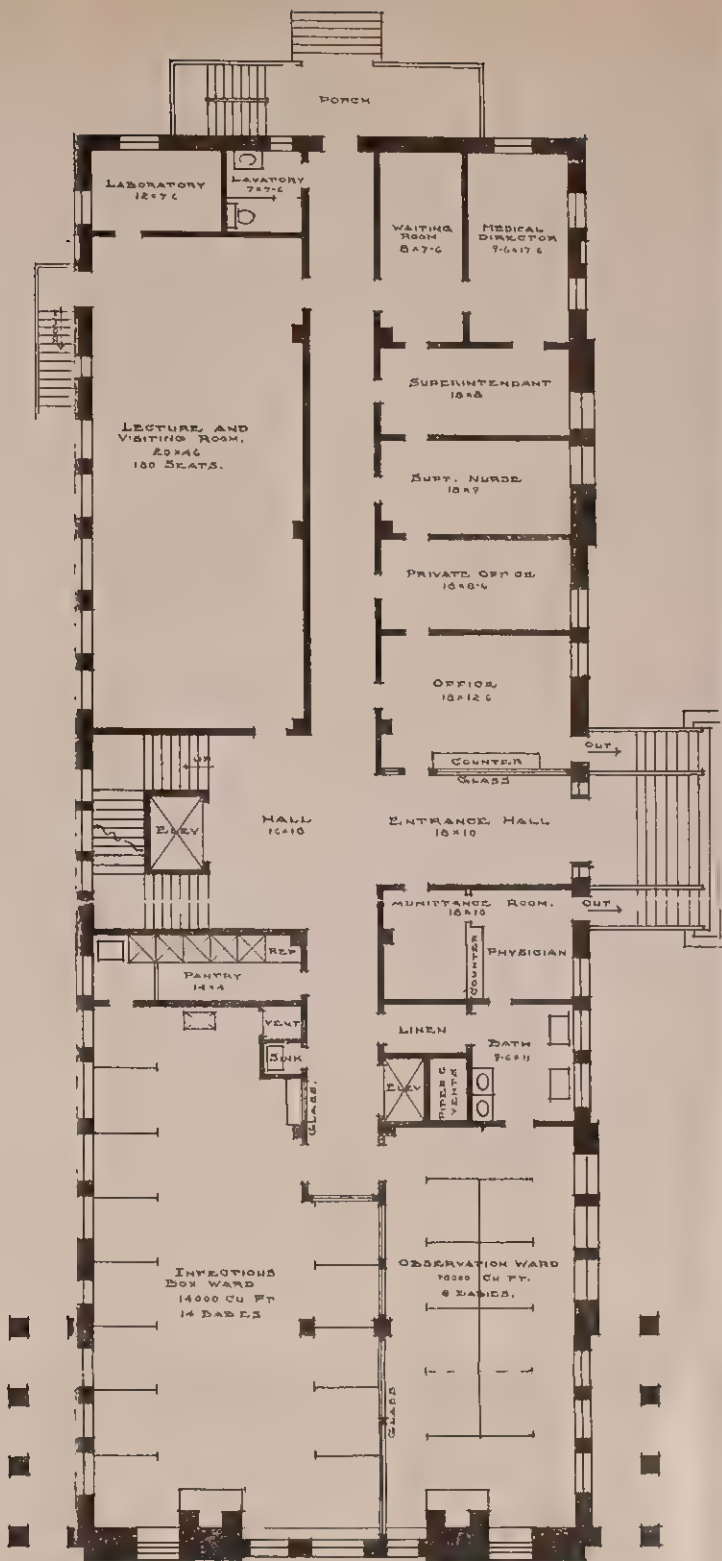


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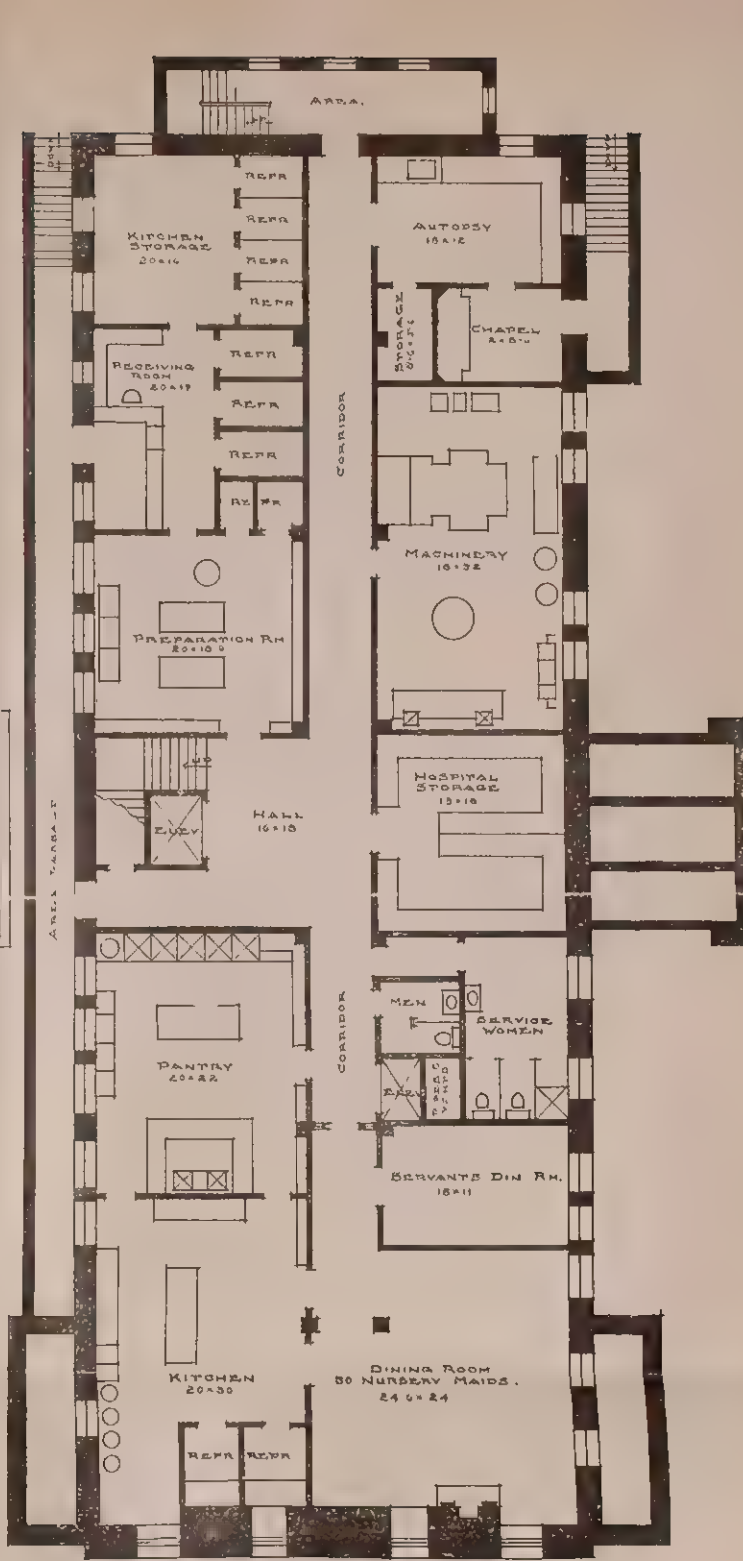


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2ND. FL. - NURSERY MAIDS & SERVANTS' MATRON.



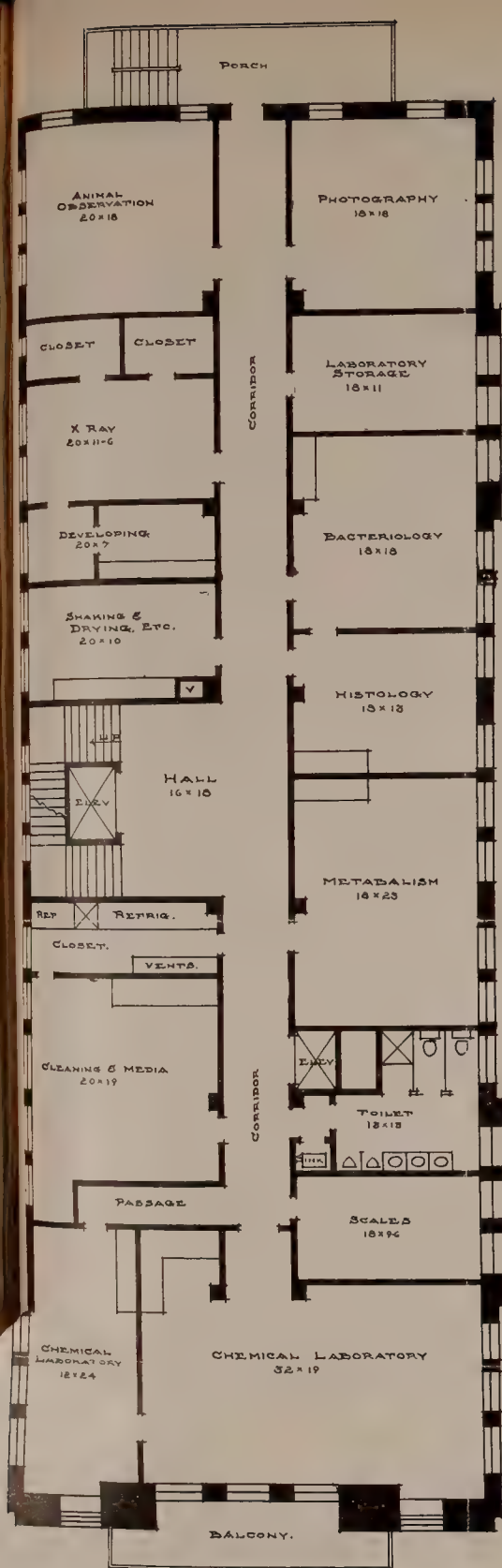
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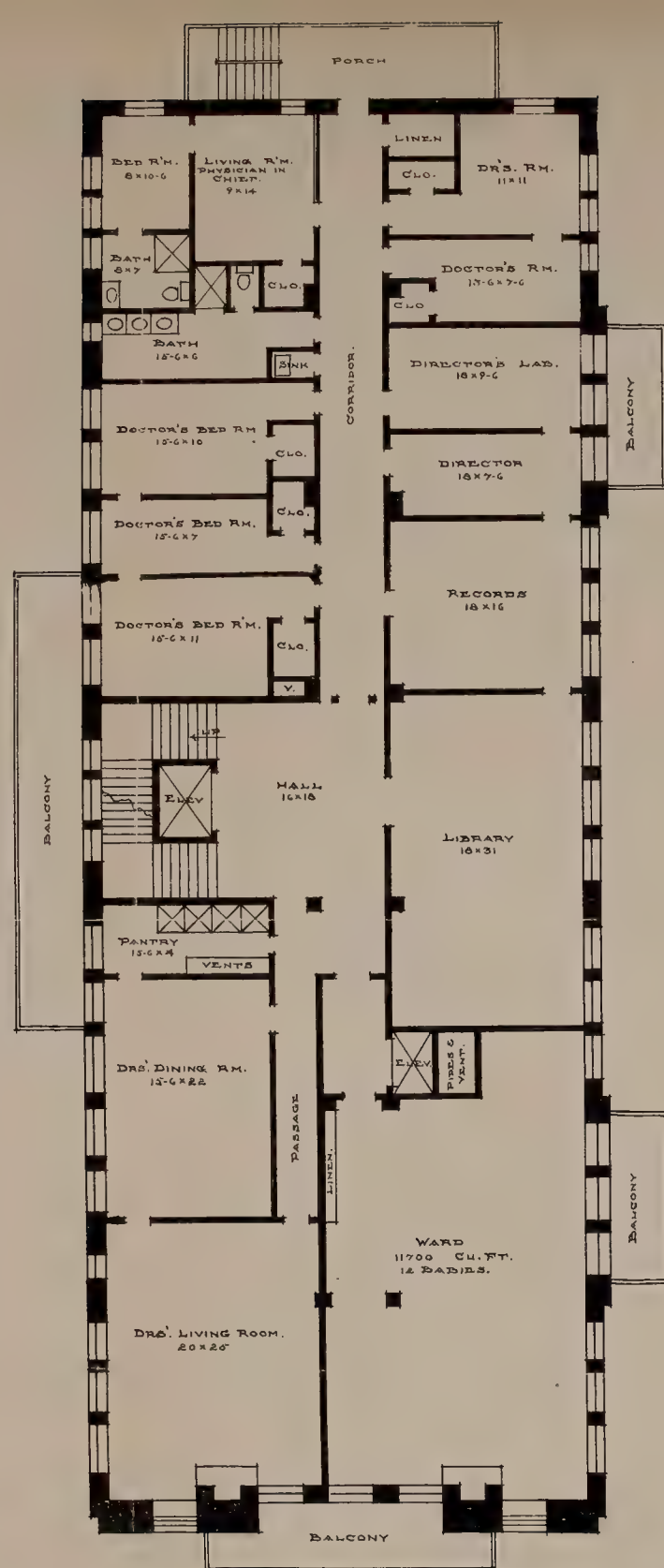
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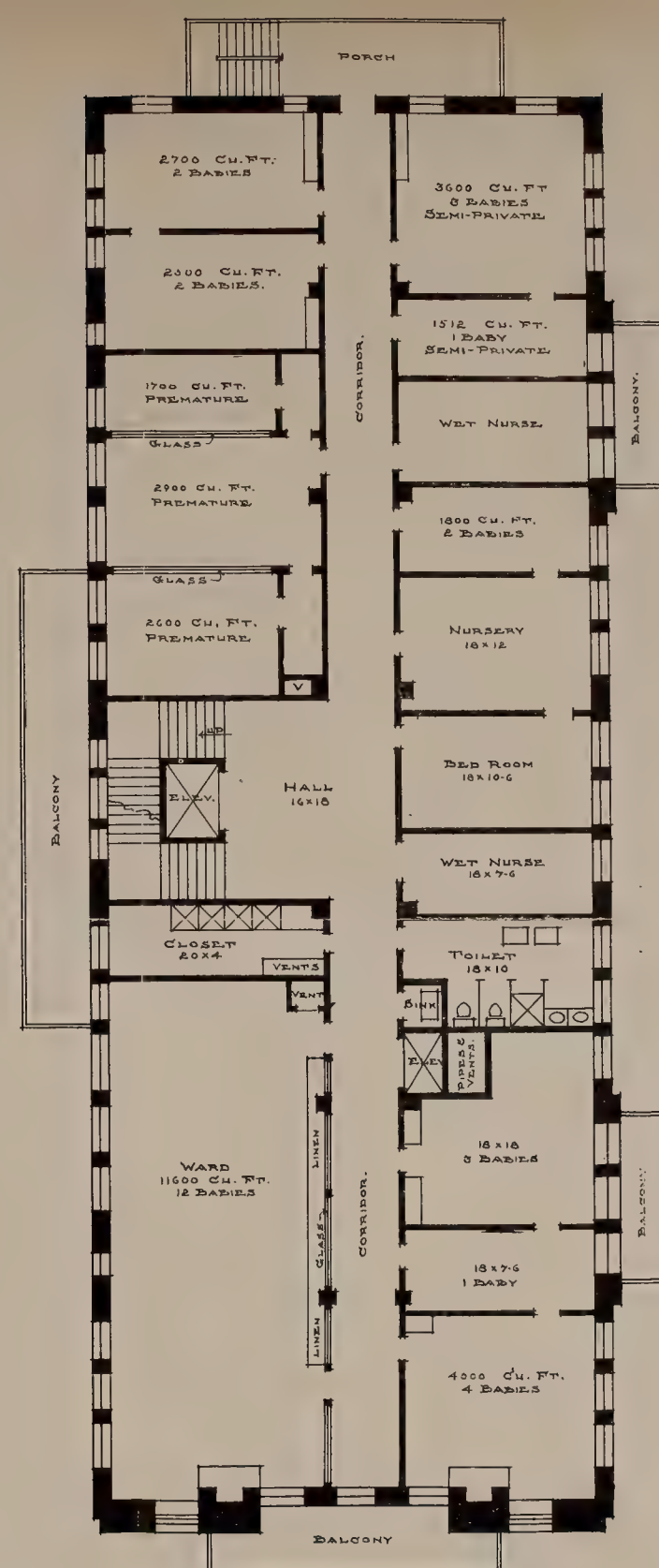




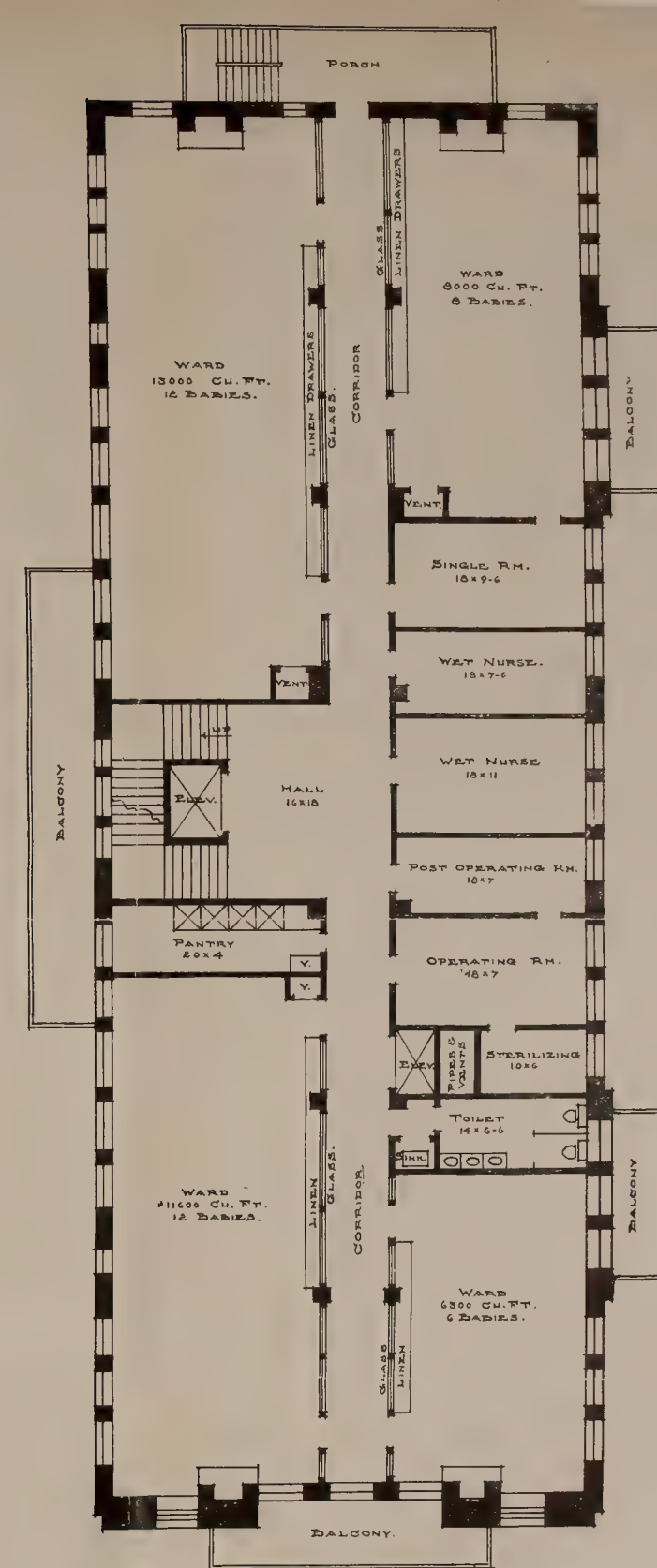
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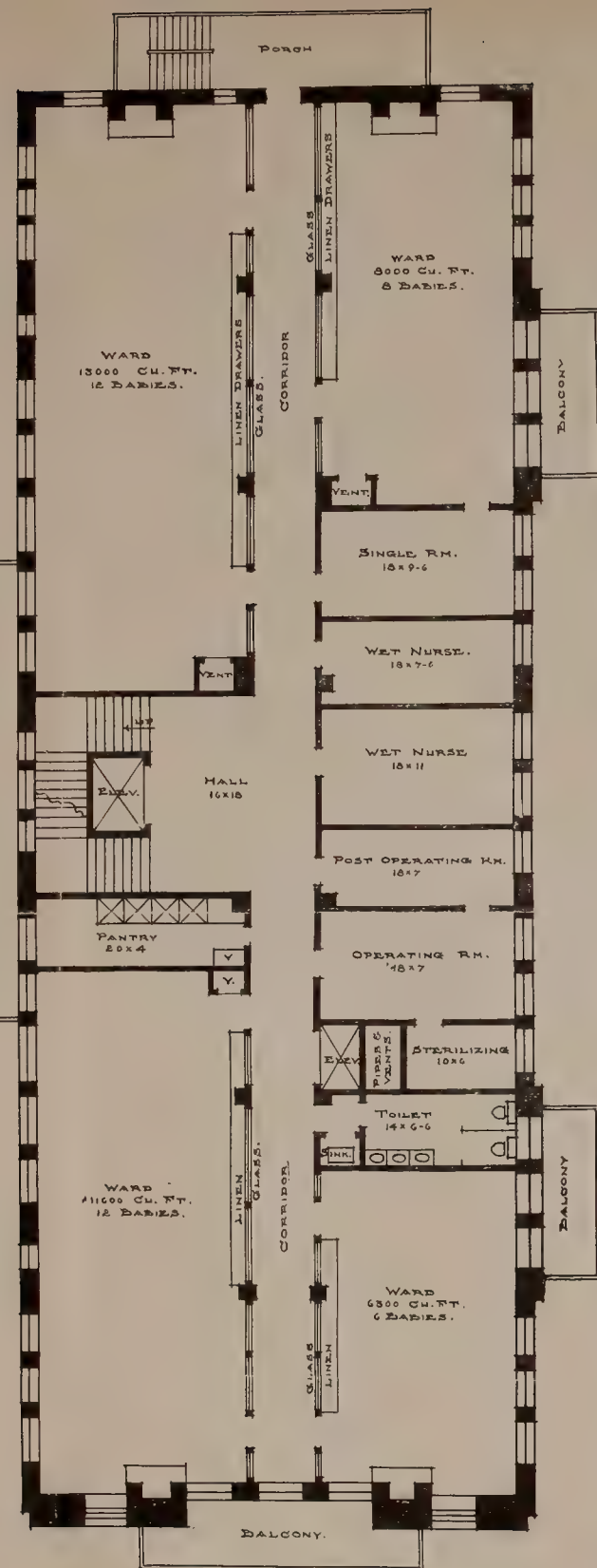
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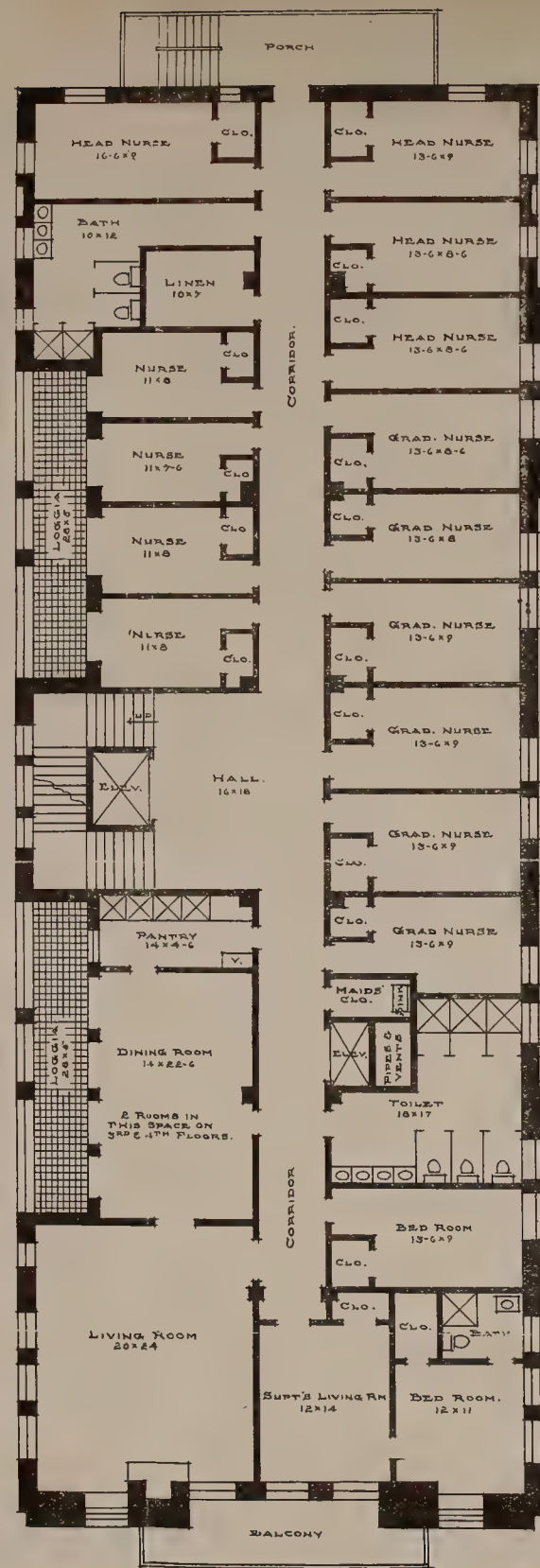
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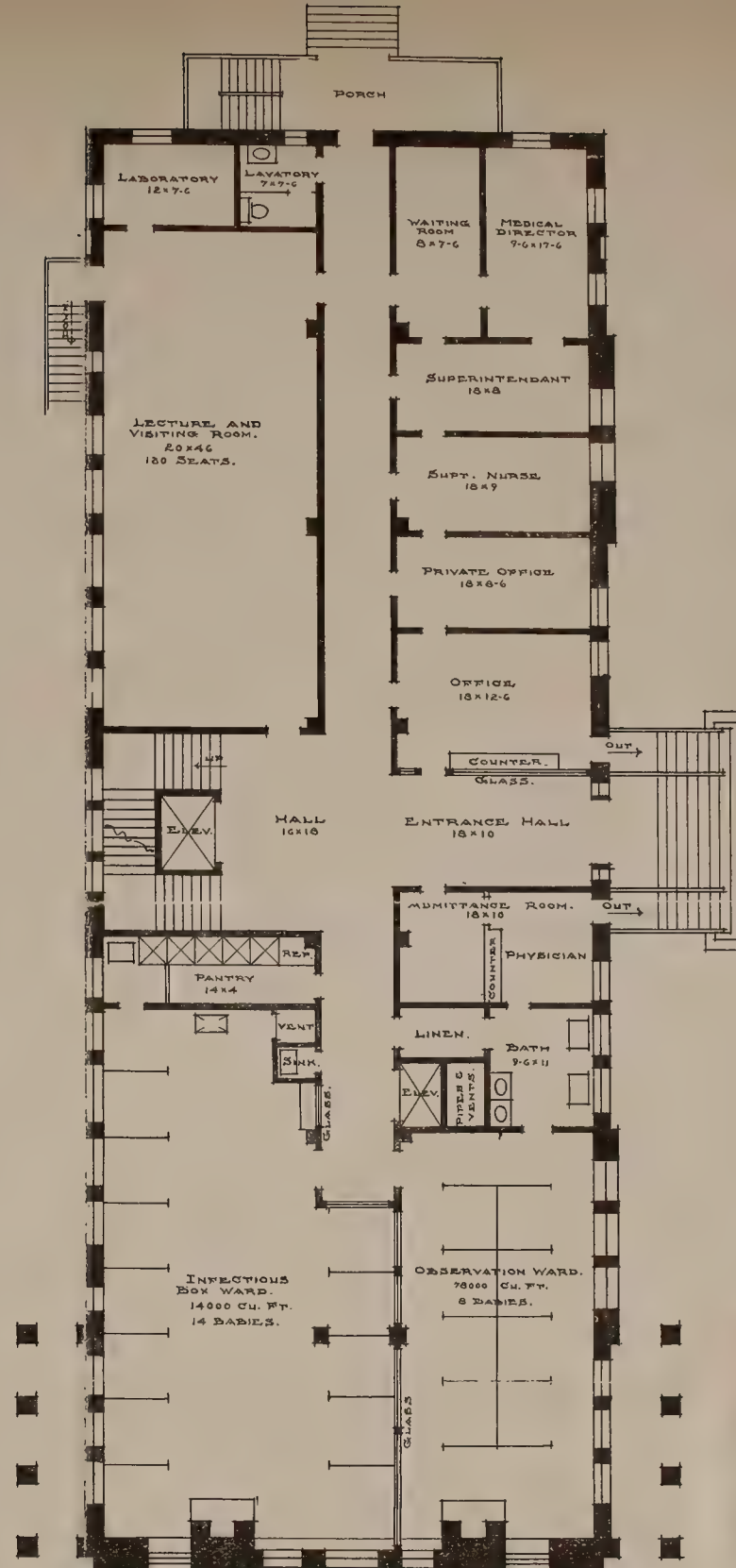


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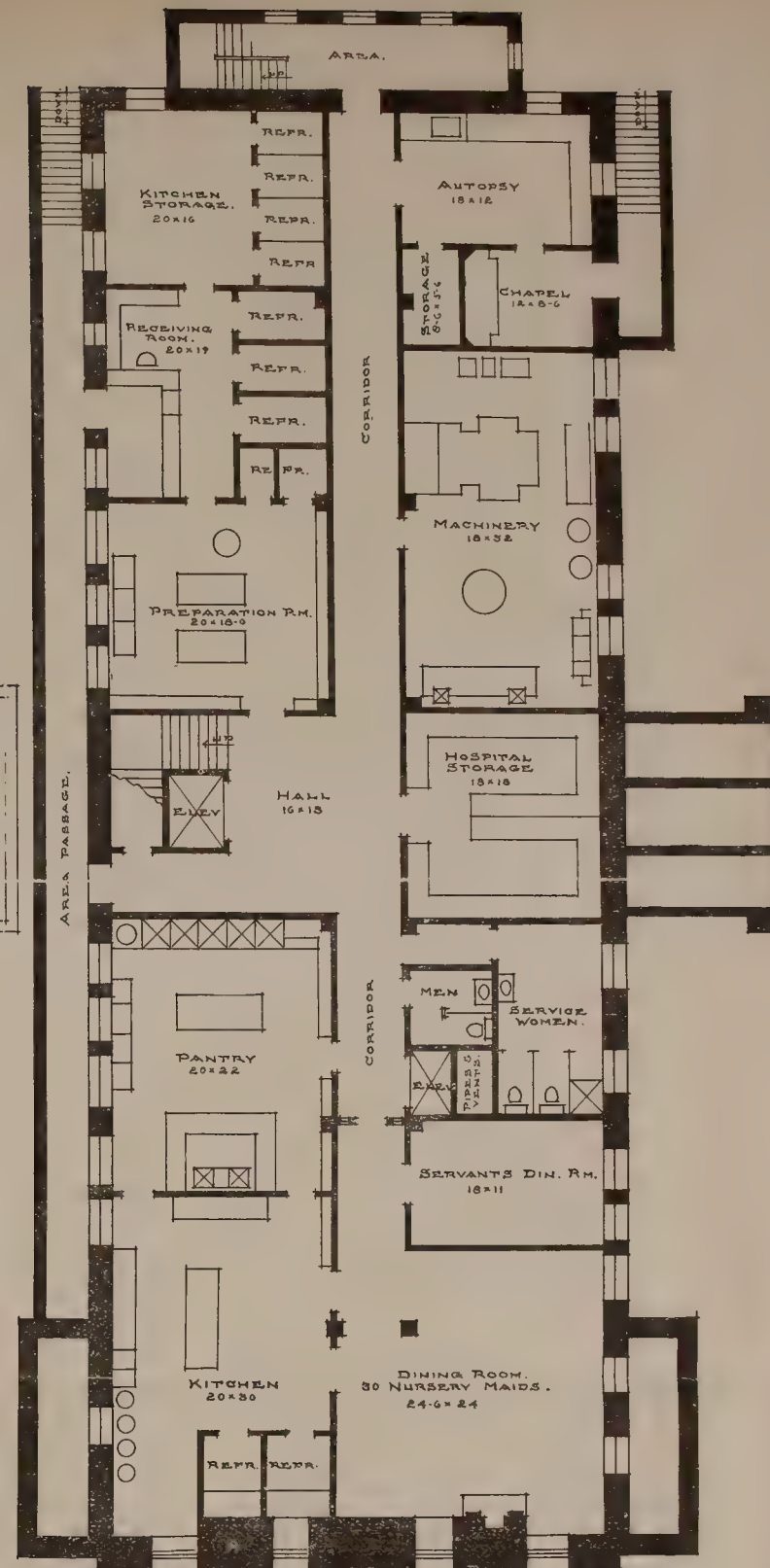


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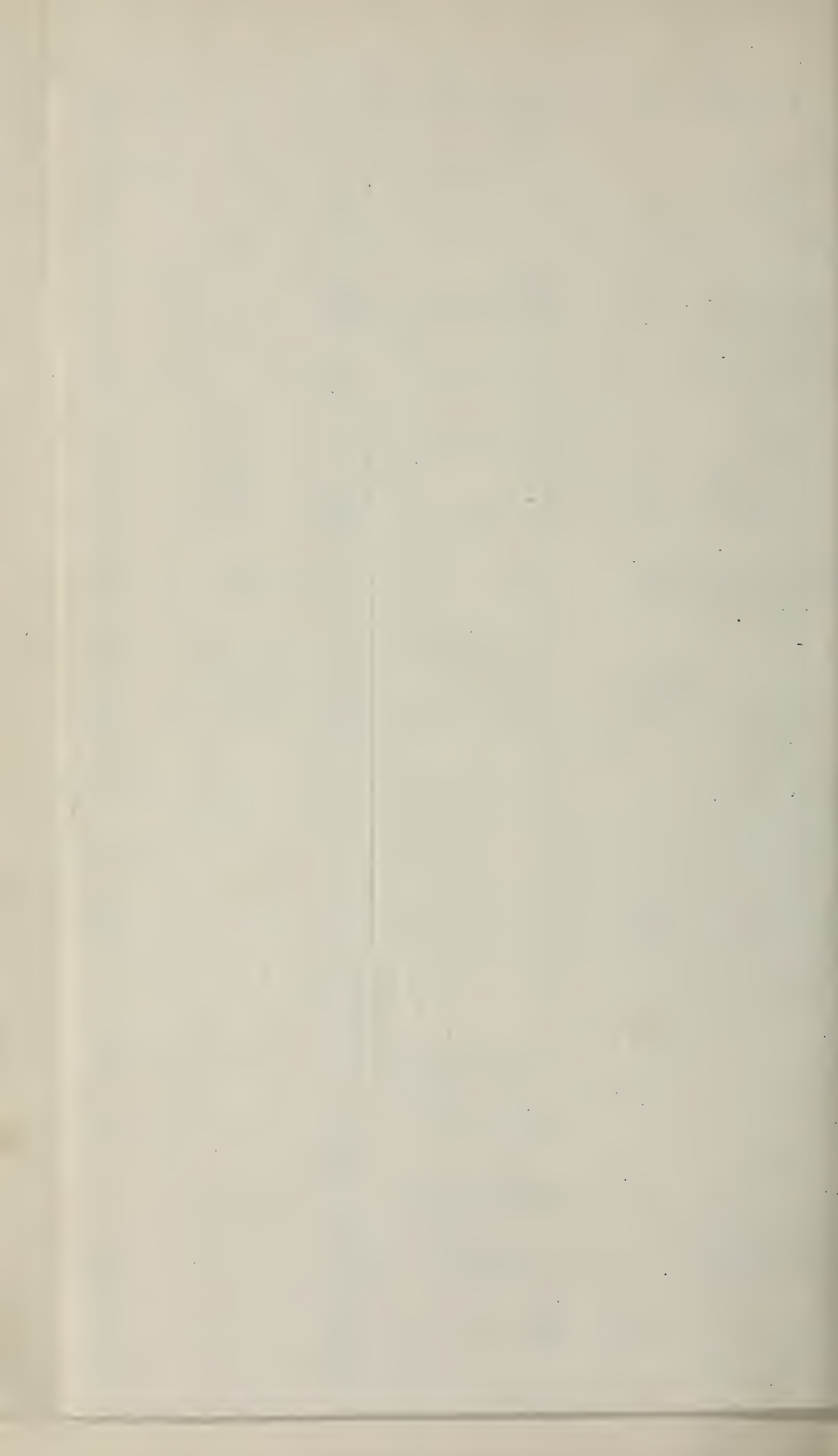
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BASEMENT.

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# The Cleveland Medical Journal

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## Von Recklinghausen's Disease, with Report of Four Cases.

H. N. COLE, Ph. B., M. D., Hanna Research Fellow in Pathology, Western Reserve University, and H. K. SHAWAN, A. B., M. D., Resident Surgeon, The Lakeside Hospital.

(From the Pathological Laboratory of Western Reserve University and the Surgical Service of the Lakeside Hospital, Cleveland, Ohio.)

The earliest cases of multiple nerve tumors were described by Monteggia Descott<sup>1</sup> about 1813, though Tilesins described the first one in 1793 and Odier, in 1803, had already given the name "Neurom" to the tumors of the nerves. In 1847, Bruch suggested that the tumors were due to polypoid growth of the neurilemma of the nerve while R. N. Smith<sup>5</sup> in 1849 gave a gross anatomic description of the condition. Virchow in 1863 described the condition at some length, dividing the tumors into true, mixed and false neuromata according as they were made up mostly of nerves, fibrous tissue or a mixture of the two. P. Bruns<sup>2</sup> in 1870, described four peculiar cases of his own and also reported four others from the literature, the earliest being that of Verneuil's in 1857. These cases were notable on account of one or more subcutaneous tumors of variable size, made up of convoluted, branched, irregular cords of nerves. Verneuil had already given them the name of plexiform neuromata but Bruns preferred to designate them, "Ranken-neurom" or, as they resembled varicocele to the touch, "neuroma circoideum." The favorite location of these tumors was on the face, neck or sacral region, they were quite vascular and contained an abundant lymphatic supply, one of these cases resembling an elephantiasis. There was also a profuse discharge of lymph on cutting into the tumors, as we too have found in several of our cases. A number of the authors already quoted had noted like conditions and, in addition, the presence of pig-



mented areas of the skin, multiple skin tumors, functional disturbances, etc. It remained for von Recklinghausen<sup>14</sup> to compile the several findings and establish the condition as a definite clinical entity. As a result of his researches, he concluded that the tumors arose from the endo- and perineurium of the nerves, as well as from the connective tissue of small vessels and glands, consequently the condition was a true fibromatosis and he named it neurofibromatosis.

Prudden<sup>13</sup> in 1880 and Hektoen and Preble in 1901, among American authors, have studied the disease thoroughly in connection with cases of their own and others taken from the literature.

During the past 10 years at Lakeside Hospital there have been five true cases of the disease, but as the records of one have been unfortunately lost, only four of them will be reviewed.

*Case I.* Clinical summary: Multiple subcutaneous tumors, soft, freely movable, painful, bluish-violet, nodular; nerves passing to tumors demonstrated at operation; no elephantiasis; cutaneous pigmentary changes; nevi; average mentality; no hereditary history.

The patient, J. G., machinist, alcoholic, age 67, born in the United States, married, no children, weight 140 pounds, was treated in the Lakeside Hospital Medical Dispensary for several months before admission on the Medical Service of the Lakeside Hospital, July 14, 1904. Was operated upon by Dr. Crile, July 26, 1904, and discharged August 23, 1904. (L. H. M. S. No. 4217, L. H. S. S. No. 5189.)

Family history: Father and mother died of pleurisy and typhoid respectively. Had three brothers and three sisters all living and well. No history of painful subcutaneous tumors nor of elephantiasis formations.

Past history: Has had a number of attacks of bronchitis and has been troubled with pain in the upper thorax. Hearing poor.

Present history: For eight years preceding admission has been having pains all over his body but now especially about the left shoulder and back. These pains have been gradually increasing since their onset and are worse in bad and changeable weather. Occasionally severe attacks of pain have

prevented him working at his trade. There are a number of soft subcutaneous tumors over the body, which have been present for a number of years. All of them but the one near the elbow on the right arm are tender, especially in rainy weather.

Physical examination: A small, nervous, shaky man with a wrinkled, scaly skin which is darkly pigmented in places. Axillary lymphatic glands enlarged. Chest hyperresonant. Has bilateral, reducible, inguinal herniae. Scar back of corona glandis. glandis.

Scattered over the body are numerous subcutaneous tumors, which vary in size from .5 cm. to 3 cm. in diameter. Some are flattened while others are spherical. Some are soft, others hard and resistant. The majority are small, bluish in color and are present in the greatest numbers over the chest. Nevi are numerous.

In the right posterior cervical triangle are three small, soft, slightly raised, rounded, subcutaneous tumors. Near them and just above the middle of the clavicle is a larger, similar tumor measuring 2 cm. by 1.5 cm. This is painful when handled.

On the left side of the neck is a tender growth measuring 1 x 1.5 cm. situated just behind the middle of the sternocleidomastoid muscle. The skin over it is movable while the tumor itself seems fixed at its base. Other smaller subcutaneous tumors are present in the left posterior triangle of the neck.

On the right shoulder is a solitary, tender, spherical tumor 3 x 4 cm. situated between the outer part of the clavicle and the head of the humerus.

A small but very distinct tumor 1.5 x 1 cm. is present 7 cm. above the internal condyle of the right humerus. Not very painful.

On the upper outer surface of the left arm, anterior to and just above the deltoid insertion is another large, spherical, soft, slightly tender tumor measuring 2 x 3 cm.

The only large tumor on the lower extremities is an irregular, soft, elongated rather tender one, measuring 2.5 x 1.5 cm., lying on the quadriceps extensor muscle of the left thigh about half way between the hip and the knee.

A single, soft, not painful, not tender, multinodular tumor is situated on the anterior surface of the right forearm 6 cm.



below the crease of the elbow joint. Patient referred its origin to a strain in his boyhood.

At the time of operation, all these tumors except the last were found encased in a fairly definite capsule and, with the same exception, nerve fibers were found running to all of them. All the tumors were removed without any difficulty. A slight amount of clear fluid was found when the second one was opened. The last one described above had no definite capsule and microscopically appeared to be a lipoma.

Pathological summary: Microscopical examination showed dense fibrous tissue in all the specimens except the last described, which was a pure lipoma. The presence of nerve tissue in the tumors was not mentioned.

*Case 2.* Clinical summary: Multiple cutaneous and subcutaneous tumors, soft, freely movable, not painful, not tender, violet or gray in color. Plexiform neuromata in left scapular region and about neck. Large fibroma, with elephantiasis formation, attached to the sternum and chest anteriorly and increasing in size laterally. There is a serosanguineous discharge from this growth. Dark blotchy, cutaneous pigmentary changes; nevi; average mentality; history of similar multiple cutaneous tumors in mother and four sisters.

Pathological summary: One tumor taken from the back is a neurofibroma, the other an ordinary lymphendothelioma. Large tumor of the chest and abdomen is a fibroma with increased vascular supply and numerous lymph spaces—*neuroma lymphangiectatica*.

The patient, G. S., machinist and foreman, age 40, born in the United States, married, has five children all of whom are free from subcutaneous tumors. Entered the Lakeside Hospital Nov. 27, 1910, complaining of a large suppurating tumor attached to the sternum, and multiple small subcutaneous growths all over the body. Referred by Dr. H. S. Rhu of Marion, Ohio, to Dr. G. W. Crile. Discharged Dec. 12, 1910. (L. H. P. W. S. No. 5759.) The measurements were made Dec. 5, 1910, and the photographs (Figs. 1 and 2) during December, 1910.

Family history: Father died at age of 55 of intestinal trouble. Mother, who is still living, had a round, painless tumor removed from her arm near the wrist years ago. This growth never recurred. No multiple subcutaneous tumors. Four sis-

ters of the patient are living, all of whom have multiple skin tumors of small size but no large ones. As far as is known, no other members of the family have subcutaneous tumors. Negative history of malignancy, tuberculosis, insanity and epilepsy.

Past history: Except for the usual diseases of childhood, patient has always been well. When 12 years of age, he was thrown from a wagon and was injured, since which time his spine has been markedly deformed.

Present history: During boyhood patient first noticed multiple subcutaneous tumors scattered thickly all over his body but especially over the chest and upper arms. These have gradually increased in size since they were first discovered until at the present time they vary from 0.5 cm. to 4 cm. in diameter. None of them have ever been tender or painful. According to the statement of the patient's mother, he had a small, soft, subcutaneous tumor over the lower portion of the gladiolus at birth, while the patient himself first noticed it when he was five years old. It grew slowly in size until two years ago it was about the size of his fist and caused him no pain or distressing symptoms of any kind. Since then it has increased rapidly in size, especially a lateral extension over the left chest, which is entirely of recent growth. Six months before admission it became red, tense, tender and of such a size and weight that he was unable to work. Several weeks before coming into the hospital the tumor was incised and a considerable amount of serosanguineous fluid mixed with blood clots was removed. Even since then there has been a slight discharge from this incision which on bacteriological examination showed a mixed infection with a predominance of *Staphylococcus aureus*. The dark pigmented cutaneous areas have been present for years. Recently the patient has been losing in weight.

Physical examination: Patient is a small anemic man with a slight scoliosis, a marked dorsal kyphosis and a corresponding lumbar lordosis. The lymphatic glands are all palpable but not greatly enlarged. No abnormalities in the eyes, ears, nose, throat, circulation, abdomen, extremities or reflexes. The skin is soft and loose, and nevi and dark pigmented areas are numerous. Thickly scattered over the entire body, but especially on the chest, back, neck and arms are numerous small subcu-



taneous tumors ranging in size from .5 cm. to 4 cm. in diameter. The smaller ones are red, firm, neither tender nor painful, and while attached to the skin and the subcutaneous tissues they are movable on the deeper structures. The smaller cutaneous ones are bluish, opalescent, soft, not tender, not painful, not inflamed, almost fluctuant and do not change color on pressure.

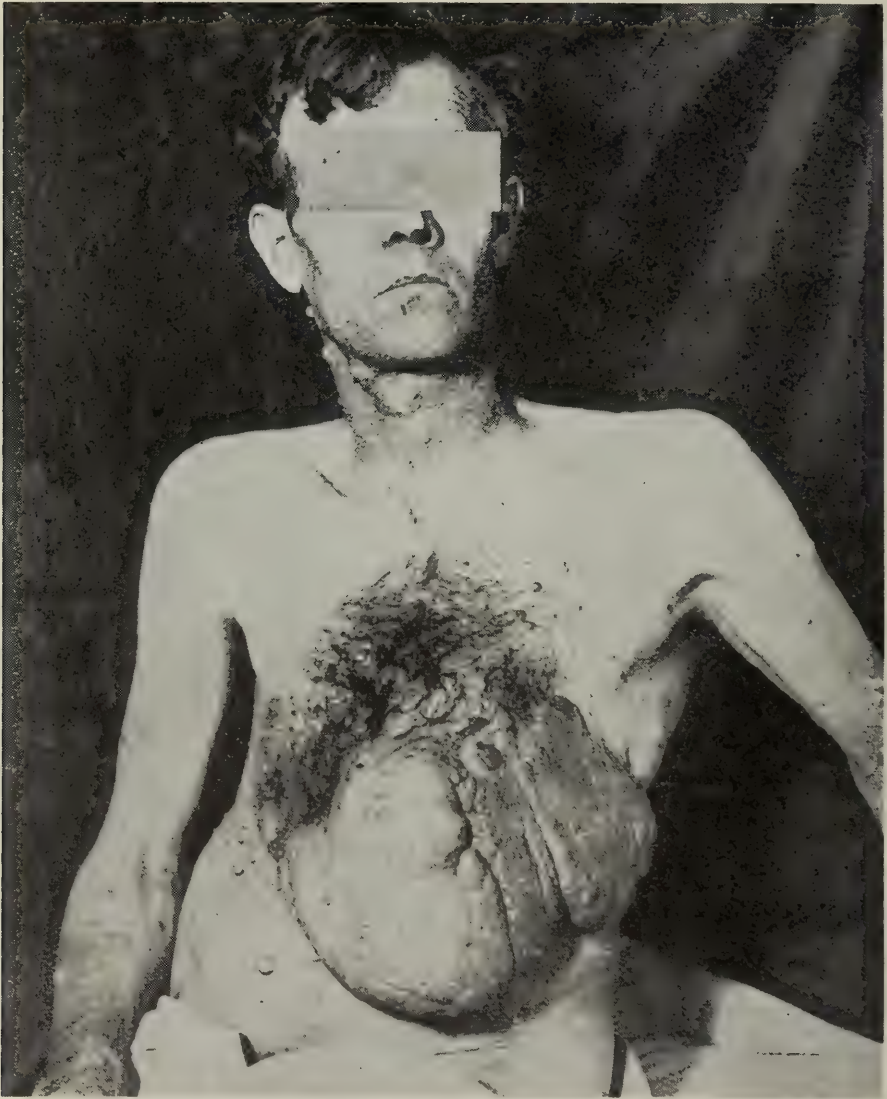


Fig. 1. Patient No. 2. Large neurinoma of chest, dating from birth.

One tumor on the back over the left scapula and several on the neck are flattened, elongated, not tender, not painful, movable on the deeper tissues, with the skin movable over them and on palpation have a feeling similar to that of a varicocele.

Over the lower sternum and chest anteriorly and apparently closely attached to them, is a large, pedunculated, lobulated,

rather firm tumor with areas of softening, having a base measuring 16.5 cm. vertically and 35.5 cm. transversely. The upper border is in the fourth interspace in the right sternal line while



Fig. 2. Patient No. 2. Large Ranken-neurom of left scapular region and numerous small subcutaneous tumors.

the lower edge is 2 cm. above the umbilicus. With this as a base, the tumor hangs dependent over the upper abdomen with shallow creases dividing it into three more or less distinct



lobules. When the patient is in the dorsal position the highest point of the tumor is 10 cm. above the level of the umbilicus.

The oldest lobule, which lies to the right, is somewhat firm, irregular in outline, nodular and measures over its surface vertically 29.5 cm. The skin covering it, other than being closely attached, is similar to that covering the rest of the body. From an old incision near its upper border, a thin seropurulent discharge is escaping. Evidence of inflammation and of degeneration are seen about this opening.

The middle and left lobules are firmer and less dependent than the original tumor. The skin over them is tough, closely attached, and of a dark rose-red color. At the greatest part they measure 15.5 cm. vertically.

Subsequent history: Six months after leaving the hospital the patient was working steadily and the incision in the large elephantiasis formation was closed.

Pathology: The tumor of the back measured about 1.5 x 2 cm. x 1.5 cm. and the consistency was only moderate, the tumor appearing to be quite vascular. Microscopically there is a moderately well defined fibroma extending up as far as the middle layer of the corium. The nuclei stain quite deeply and are numerous. The tumor is vascular and there are many primary lymph spaces, having no endothelial linings, between the tissues. At the epidermal border there is a large sebaceous cyst along the hair. Only one small nerve is seen and the axis cylinders appear quite normal, though the nuclei of the sheath of Schwann are increased in number, appearing like the nuclei of fibrous tissue. The nerve is well defined.

A second tumor removed from the back was of like size and consistency. Microscopically the tumor shows a growth made up entirely of hyperplastic lymph endothelium. There are numerous large lymph spaces just below the epidermis lined with strands of endothelial cells while the base of the growth is a solid mass of the same cells. The growth is quite well defined.

Section removed from the large tumor of the sternal region measures 2 x 1 x 3 cm. and is rather grayish white in color. Microscopically the tissue is made up entirely of a moderately vascular fibroma, containing some blood vessels and lymph spaces. The nuclei are quite numerous, variable in size

and appear to have no definite direction. There is a moderate infiltration with small round cells and occasional mast cells, especially around the blood vessels. No nerve tissue is seen. The tumor is not well defined and gradually merges into the corium and epidermis.

Another biopsy made about six inches from the former one was about the same color and consistency. Upon microscopical examination there is a marked increase in the number of nuclei. The lymph spaces are also more definite and lined with endothelial cells while deep in the section are found two large irregularly shaped blood spaces with merely an endothelial lining. Near the center of the section a small nerve made up of about ten axis cylinders is seen. It appears to be normal and there is no increase in the nuclei of the sheath of Schwann.

*Case 3.* Clinical summary: Multiple cutaneous and subcutaneous tumors, soft, movable, not tender or painful; plexiform neuroma and elephantiasis formation on cheek, likewise neither tender nor painful, and from which much serum and blood exuded at the time of operation; many large and small dark cutaneous pigmentations, hypertrophy of right maxillary bones; average mentality; no hereditary history.

Pathological summary: Of two small tumors from the back, one was a neurofibroma and the other a pure fibroma. The tumor of the cheek showed dense fibrous tissue and intermingling nerves.

The patient, C. W., farmer, age 21, American, single, weight 150 pounds, entered the Lakeside Hospital Jan. 20, 1911, complaining of a large disfiguring tumor of the right cheek. A plastic operation was done by Dr. W. E. Lower, Jan. 23, 1911, and patient was discharged March 7, 1911. Second admission on April 7, 1911, patient complaining of severe abdominal pain for which an appendectomy was done and patient discharged April 21, 1911. Photograph (Fig. 3) taken Jan. 21, 1911. (L. H. S. S. No. 17618 and No. 17876.)

Family history is entirely negative as to mental disturbance or a like disease. Patient's past health has always been good. The large dependent growth on right cheek was first noticed shortly after birth. Since then it has gradually increased in size along with the rest of the body. There has



never been any local pain, discharge or variation in size. As far as the patient knows the multiple cutaneous tumors have been present over the body since birth and they have never given any pain. The pigmented spots have also been present as long as he can remember.

Physical examination: Patient is a well developed, well nourished man. No abnormalities in pupils, ears, circulatory system, or gastro-intestinal tract. Cervical glands are enlarged. Expansion of the lungs is limited on the right. Reflexes are active.

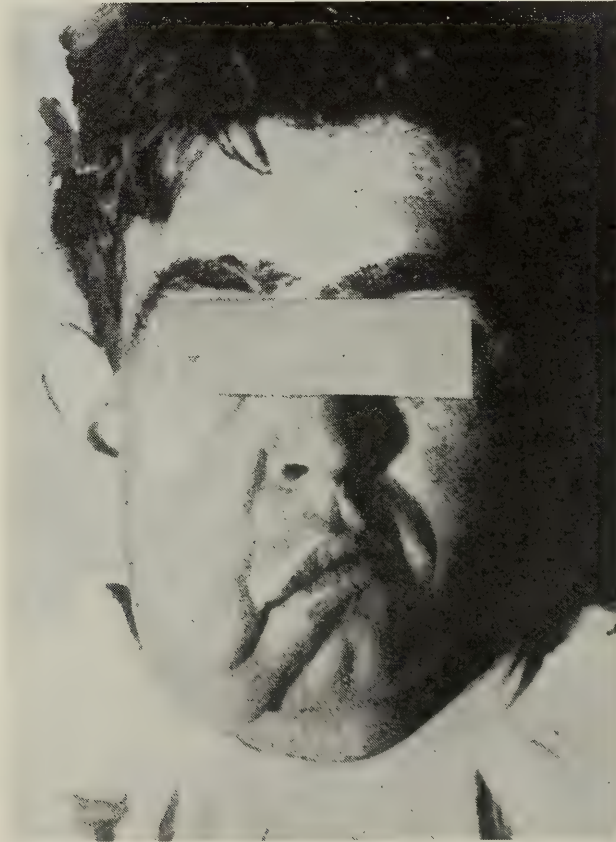


Fig. 3. Patient No. 3. Large Ranken-neurom of the right cheek. Numerous subcutaneous tumors.

The skin is covered with small, dark brown, pigmented areas of variable size. Scattered closely over the trunk and extremities are numerous, small, soft, slightly raised, faintly purple colored, cyst-like tumors measuring .5 to 1 cm. in diameter. Artificial light at an angle gives the skin a peculiar mottled appearance. A few firmer, larger, subcutaneous tumors are also present. On the right of the face is a large, thick growth

measuring 19 x 16 cm. and hanging down below the lower edge of the inferior maxilla. It involves the entire right cheek and right halves of both upper and lower lips. By the tumor's weight the right angle of the mouth is drawn well down and there is a slight ectropion of the right lower lid. The skin covering the tumor is dark, heavy, thick and freely movable. On palpation of the growth a definite tender tumor mass is felt with a general, soft, diffuse structure and consistency not unlike a varicocele. The mucous membrane lining the right cheek is light red in color, soft and hypertrophied, so that a small pedunculated mass 4 x 5 cm. hangs opposite the molar teeth. Both the superior and inferior right maxillae are thicker than those on the left, as demonstrated by the x-ray.

Hemorrhage and escape of serum was very marked at the time of operation and there was an intense postoperative edema of the parts which lasted for several days. At first patient did not react very well from the operation.

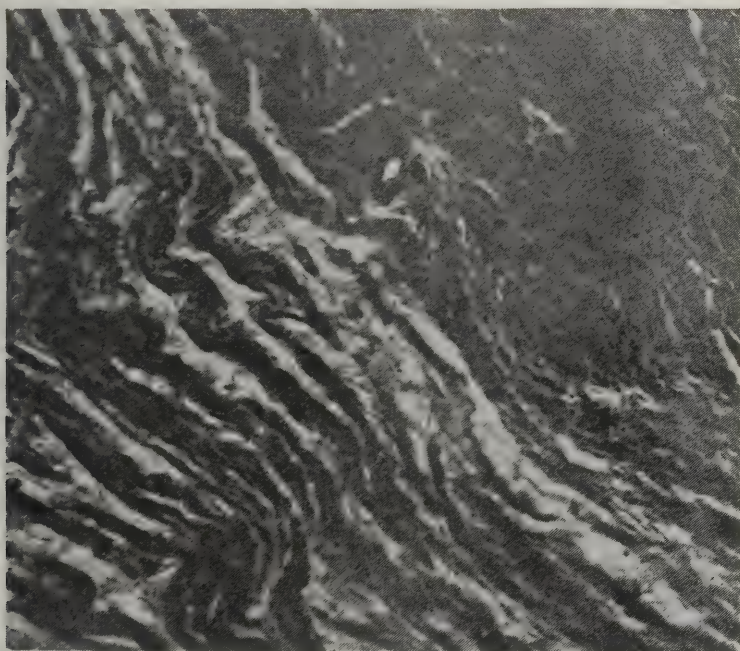


Fig. 4. Section of subcutaneous tumor from Patient No. 3. Two well defined nerves in a fibrous tissue growth. Increase in fibrous tissue nuclei. Axis cylinders of nerves made out of with a slight increase in the number of the nuclei of the sheath of Schwann.

These photomicrographs were all taken with a No. 4 eyepiece and a No. 3 nosepiece, with a bellows length of 18 cm., giving a uniform magnification of X 100.



Subsequent history: Patient was readmitted one month later with severe pain and tenderness in the right iliac region, and an appendectomy was done. At this time there were no changes noted in the skin and the right cheek presented an excellent cosmetic result from the plastic operation.

Pathology: A tumor removed from the chest, 2 x 2 x 2 cm., was of moderate consistency and grayish in color. Microscopically the tissue is a quite well defined fibroma (Fig. 4), showing in different sections from 12 to 18 different nerves of varying size. These nerves appear to be normal except for a moderate increase in the number of the nuclei of the sheath of Schwann. In some places the fibrous tissue has grown in between the axis cylinders, forcing them apart. Lymph spaces are very numerous, especially around the borders of the tumor. There also appears to be a secondary increase in the fibrous tissue of the vessel walls.

In a like tumor removed from the back a pure fibroma, with nothing not already described, was found.

The tissue from the cheek was a section 1 x 4 x 2.5 cm., whitish in color and of good consistency. Microscopically the entire tumor is made up of dense fibrous tissue, the fibers running in different directions. In some places the nuclei, flattened out and closely packed together, are seen in cross section; while again they are found in longitudinal section. Vessels are numerous and many lymph spaces with endothelial lining are seen. Several large nerves are present and they are not well defined, as in all our other tumors examined, but appear to gradually merge into the surrounding fibrous tissue. The nuclei of the sheath of Schwann are greatly increased in number but it is impossible to differentiate them from the nuclei of the fibrous tissue.

*Case 4.* Clinical summary: Several freely movable, slightly painful, not tender, subcutaneous tumors; Ranken-neurom of face with dark pigmentations and heavy growth of hair over it. Cutaneous pigmentary changes, average mentality and no hereditary history. Free escape of blood and serum at time of operation, marked postoperative edema and recurrence of growth following operation.

Pathological summary: Plexiform neurofibroma with hy-

aline degeneration of the muscle fibers and formation of lymph spaces.

The patient, C. S., clerk, American, single, aged 17, weight about 125 pounds, entered the Lakeside Hospital May 28, 1909, and was discharged June 9, 1909. Patient of Dr. D. P. Allen (L. H. S. S. No. 10317). Readmitted May 2, 1911, and discharged May 19, 1911; patient of Dr. G. W. Crile (L. H. S. S. No. 18018).

Family history: Patient's mother died with neuritis but otherwise there is nothing suggestive in the family history. The patient had a fracture of his skull in his second year of life but was otherwise always well. He states that shortly after the fracture of his skull, a mass was first noticed over the temple and right forehead. It grew gradually in size so that in youth it hung well over his right eye and obstructed his vision upwards. Four months previous to his first admission he began to have frontal headaches, chiefly on the right side. At the same time the tumor would become painful and throb. When he was 11 years old a stiff, heavy growth of hair, blending with the scalp, appeared on the upper part of his right cheek and forehead. Two tumors present in the right temporoparietal region were also first noticed soon after the cranial fracture. These have never been painful or tender and have remained stationary in size. He does not remember when the tumor near his right elbow first appeared, but it has never been painful. Dark pigmentations over the elephantiasis formation on the face and cutaneous blotches elsewhere have been present for years.

Physical examination: Normally developed, healthy appearing boy. Situated in the right frontal and temporal region is a tumor mass 7 x 3 x 1 cm., of doughy consistency. It is of such a size that it causes the right eyebrow to droop down over the right upper lid. It is not sensitive, not swollen or red and it does not fluctuate. On palpation it feels much like a bundle of worms, and within the tumor is a small, slightly tender mass about 1 cm. in diameter. The skin over the growth is closely attached, deeply pigmented and covered with stiff hair. This pigmentation and the growth of hair continues down over the skin covering the right cheek. Posterior to this tumor, in the



right temporal region, is a softer, more movable, flattened, subcutaneous mass measuring  $4 \times 3 \times 1$  cm. And just behind this last one, in the right parietal region, is another similar tumor. The skin over both is deeply pigmented and covered with a heavy growth of hair. Neither mass is tender or painful. The only other tumor is a subcutaneous growth found at the flexure of the right elbow. It is movable, soft, elongated  $1 \times 2$  cm. and is not sensitive.

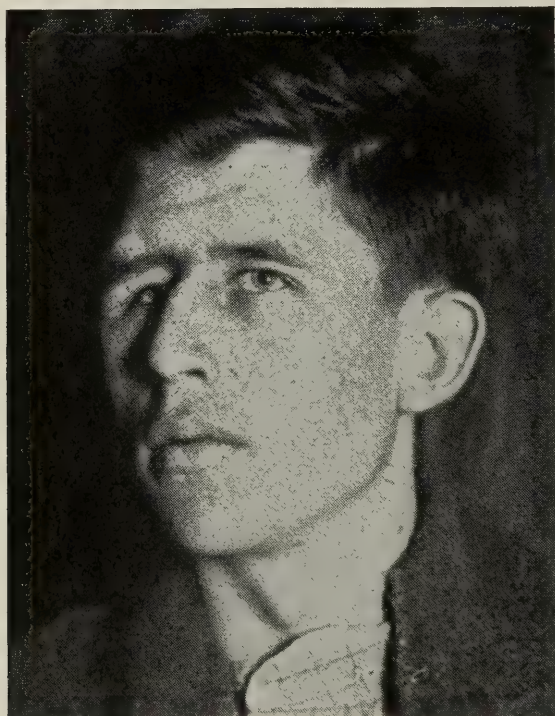


Fig. 5 Patient No. 4 Ranken-neurom of right eye-brow and temporo-frontal region.

The first operation was performed by Dr. D. P. Allen, May 29, 1909. By this plastic operation a mass of tissue  $6 \times 2 \times 1$  cm. was removed from the side of the head with excellent cosmetic results. Hemorrhage was free, as was also the flow of serum.

Subsequent history: One year after he was discharged he noticed that a soft subcutaneous tumor was growing on the right forehead in the region occupied by the former growth. It was never painful or sensitive and the pigmentation of the skin remained the same, though the hair covering it turned gray. On readmission May 2, 1911, this tumor measured  $8 \times 3 \times 1$  cm. A second plastic operation was done by Dr. G. W. Crile May

3, 1911. As in other operations on this type of tumor the hemorrhage was free and escape of serum marked. Patient reacted well to operation and was discharged much improved.

Pathology: A section  $3 \times 2 \times 2$  cm. was taken from a large mass  $8 \times 3 \times 1$  cm. removed from the forehead. The tissue is soft, grayish in color and feels as if a bundle of cords was present within it.

Microscopically there is a fairly well defined tumor made up in places of almost successive, circling strands of fibrous

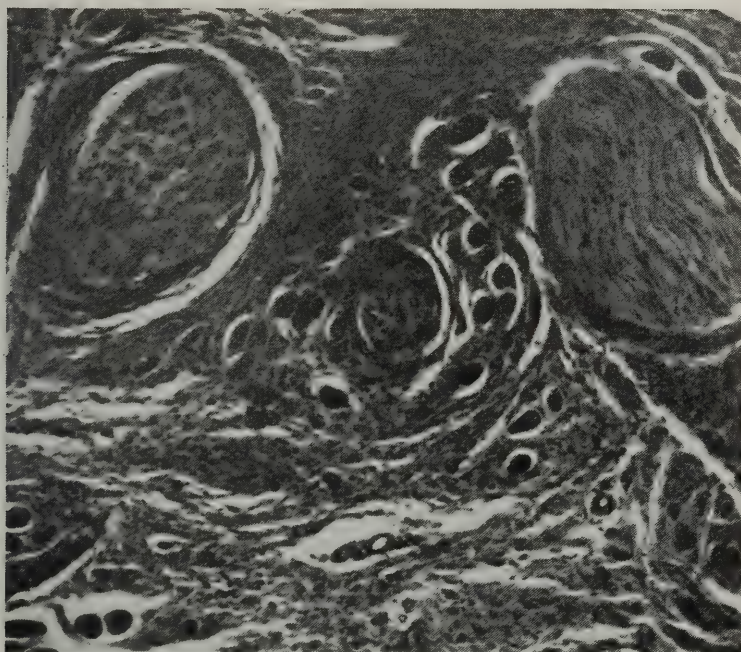


Fig. 6. Section from Ranken-neurom of face of patient No. 4. Three well defined nerves are seen in a fibrous tissue overgrowth.

Small areas of hyaline degeneration of muscle, with fibrous tissue growing between them, are present.

tissue, between are found primary lymph spaces containing coagulated lymph (Figs. 6 and 7). In some areas the spaces are found to have endothelial cells lining them. There are five large nerves in the portion of tissue examined. These show normal axis cylinders and a moderate increase in the number of the nuclei of the sheath of Schwann. The nerves are very well defined by their perineurium from the surrounding structures. Numerous bands of muscle fibers are present, showing all grades of hyaline degeneration. The fibers are forced apart



by the growth of fibrous tissue, have lost their nutritional supply and, as a result have degenerated, as is shown in the photomicrograph (Fig. 6).

From a summary of the case reports and a short résumé of the condition already given, one finds that the most marked symptoms of the disease are the multiple cutaneous tumors, the pigmentary anomalies, the tumors of the nerves and the elephantiasis formation. Still another change should also be added to the four already given, viz., functional disturbances. These will be taken up in the order of their frequency.

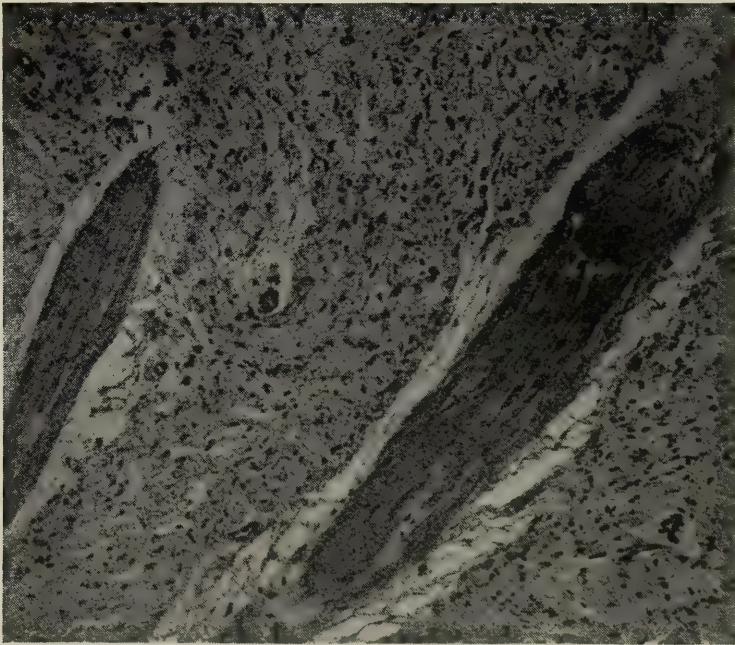


Fig 7. Section taken from same tumor of patient No. 4. Primary lymph spaces between strands of fibrous tissue. The lower portion of the mass is a solid fibrous tissue overgrowth.

The cutaneous tumors, going under the names of multiple fibromata, fibroma molluscum, neurofibroma, etc., vary in size, shape, number and position. As a general rule, the tumors are found more on the anterior and posterior parts of the trunk, especially on parts subjected to pressure, though they may be found anywhere, even on mucous membranes, as in one of our cases. Their number may run from a single tumor up to several thousands, thus Modrenjenski's<sup>7</sup> patient had 3000. One of our patients also had a large number and there may be so many that it is impossible to count them. Their size is quite

variable: they may be as small as a pinhead or as large as a man's fist. Generally, however, the ordinary cutaneous tumors vary from the size of a chestnut to that of a walnut. The growths may be elevated or depressed; they are generally of a pinkish or faint bluish color; and to the touch they feel like small lipomata. Generally they are not tender, though, as in several of our cases, patients complain of pain in the tumors—supposed to be due to pressure or traction on the small nerves frequently found within them. In fact Soldan<sup>16</sup> believes that at some time they all contain at least a "Stämmchen" from which the fibroma, of which the tumors are made up, has originated, and that then, perhaps, there has resulted an atrophy of the nerves leaving the pure fibroma. We might say here that in none of our cases was any noticeable atrophy of nerves noted, though it has been seen by some workers.

The tumors may be present at birth or appear later, as at puberty; while pregnancy at times appears to exert an influence on their number and rate of growth. Thus, Hirst's<sup>8</sup> patient, aged 18, had four typical growths on the anterior surface of the body, while during pregnancy there was an increase not only in their size but also in their number. Trauma at times appears also to cause an increase in their rate of growth.

The next most common symptom of the disease is pigmentary change. It is present in at least 25% of the cases and generally even more frequently. The pigmentary spots are generally dark brown in color and, varying in size and shape, appear to have no connection with nerves. The entire pigment layer of the skin may be more strongly developed than normally, though histological examination shows nothing abnormal in its development, merely an increase in the chromatophore cells of the pigment layer of the epidermis and upper corium. Heman-giomata may be present, as in one of our cases, and pigmented moles are frequently seen.

A less frequent occurrence in connection with the disease is the presence of tumors of the nerves. The tumors may be single and appear but as a local enlargement or there may be a diffuse enlargement of the entire nerve. Again the nerve may coil up and branch as in an amputation stump (Ranken-neurom, plexiform neuroma, neuroma cirsoideum). In connection with these last tumors, they may involve a deeper nerve or nerves



or they may be rather superficial, forming a "lappiger" tumor as in our cases Nos. 3 and 4, somewhat resembling a lipoma. On palpation they are rather soft and their contents feel like a bundle of earthworms or a varicocele and frequently they tend to the elephantiasis condition to be mentioned later. Thus Czerny<sup>3</sup>, reports a girl with a large, soft, irregularly lobulated growth about the size of a large watermelon attached to her lumbosacral region. It was present from birth but increased in size. The contents were fibrous tissue, a plexiform neuroma and large lymph spaces. Three generations in the girl's family were affected with a like trouble. The "Ranken-neurom" is most frequently found on the face and neck when superficial, especially along the eyebrows as in our two cases or along the side of the cheek and head. Of the internal nerves affected with this variety the sciatic is probably most often involved.

Of the ordinary tumor involvement of nerves the vagus is probably most often affected, then come the abdominal sympathetics and the sciatics. Often the vagi at postmortem appear like a string of beads from the numerous small neuromata studding them. Some cases may have several hundred tumors on the vagi alone. These nerve tumors may grow to be of large size, thus Hektoen and Preble<sup>7</sup> speak of a case with a neuroma 1 x 3.5 cm. and several cases have been reported in which a neuroma the size of a child's head was found in the pelvis. Often the tumors appear to cause no discomfort except from pressure, while again there may be abdominal pain, tachycardia, pain in the limbs, etc.

It may be well to mention in this connection that in quite a few cases coming to autopsy, brain tumors have been found. They have been gliomata, endotheliomata and true neuromata, or better neurinomata. The spinal cord and its spinal nerves are also affected at times. Curiously enough, a true neurinoma of the optic and olfactory nerves has never been found, a point which will be mentioned later.

A symptom of the disease less frequently found, but quite characteristic, is that of elephantiasis. Since the earliest history of the disease it has been noted that quite frequently the patients were also affected with chronic swelling of their lower limbs, genitalia, neck or side of face. Czerny<sup>3</sup>, already quoted, and P. Bruns<sup>2</sup> were among the earli-

est to call especial attention to the symptom. The patient may be troubled for years with a swelling of one or both limbs or of one of the labia, while there is absolutely no circulatory disturbance or filaria infection. On palpation the skin is found to be somewhat thickened and the tissue may feel like a lipoma or somewhat like a bundle of worms from the strands of fibrous tissue running throughout. Quite frequently a plexiform neuroma is found in these formations, especially when on the face and neck. On incising these elephantiasis formations, there is a profuse discharge of lymph, as was especially noted in three of our cases, Nos. 2, 3 and 4, due to opening of dilated lymph channels. Consequently, following operation there is a tendency of the parts after being sutured to swell up from a local collection of serum.

Bruns<sup>2</sup> explains this formation as follows: "Meiner Ansicht nach ist dieselbe eine Erscheinungen der kongenitalen Elephantiasis im weiteren Sinne, wenn wir darunter eine angeborene. Anlage zu geschwulst-förmiger Bindegewebswucherung, zu Fibrombildung entstehen, welche die Haut und Unterhaut betrifft und bald die Blut-gefäße, bald die Lymph-gefäße, bald die Nerven wesentlich beteiligt. (Elephantiasis Telangiectatica, Lymphangiectatica und Neuromatodes)."

In other words, this congenital tendency to fibrous tissue formation affects the lymphatics along with the nerves and blood vessels and there is then a hindrance to the lymph flow and resultant elephantiasis.

The final principal symptoms in connection with this disease are functional disturbances and they are probably common enough to be placed on an equal footing with the other four principal symptoms. Thus of 32 cases reported by Prudden<sup>13</sup>, there were two cretins, one idiot and two of weak intellect, one cryptorchid and one epispadiac. The patient may or may not complain of pain, though quite frequently patients affected with abdominal neurinoma complain of pains in their stomach or bowels. Large neurinomata may cause an actual disturbance of function, either sensory or motor, and tumors pressing on the vagi may cause palpitation, tachycardia, bradycardia, stomach trouble, etc., though very frequently a patient with a vagus studded with neurinomata will



come to autopsy without having had symptoms pointing to the same. There may be paresthesia, anesthesia or weakness. Sometimes paralysis of one of more limbs is present, while in the case of Hektoen and Preble there was arthralgia as well as joint changes and trophic disturbances. Scoliosis has been noted in a few cases and Seefelder<sup>15</sup> has lately called attention to the occasional occurrence of hydrophthalmus in these cases. Congenital defects are sometimes seen and a few of the cases have regular occurrence of chills (Harbitz<sup>5</sup>).

Etiology: All ages are affected with the disease and 65% of them are males. The disease may be either present at birth or it may develop later as at puberty or at the menopause. As already mentioned trauma and pregnancy at times have some influence on it. The disease is both congenital and hereditary, a large percentage of the cases are affected at birth and at least one-fifth show a hereditary tendency. Thus in one of Harbitz' cases nine persons in five consecutive generations were affected: the family could not be traced further back, but it was apparently transmitted through the female members of the family. Czerny's case has already been mentioned. Bad hygienic conditions with a familial tendency may also predispose to the disease. In one of our patients the mother and three sisters were affected.

Prognosis: In this class of cases the outlook is usually good and as a general rule the patients die of some intercurrent infection. In the 32 cases reported by Prudden the average age at death was 31 but this is probably below the general average as these cases were all exceptional examples of the disease; many of them live to a good old age. However, there is one class of patients affected with this disease in which the prognosis is not so good, we refer to the cases affected with the "Ranken-neurom." Quite frequently they return after removal as in our Case 4 and in about 12% of cases there is a following sarcomatous change of the tissue, though our case shows none as yet. In addition, the patients with the elephantiasis form of the disease, such as our Nos. 3 and 4, bear operation rather poorly and the prognosis is far from good. Bruns<sup>2</sup> and Czerny<sup>3</sup> report very poor results in such cases. If possible it is better not to attempt operation if the growth is at all extensive.

Diagnosis: Given a case showing multiple skin tumors, with pigmentations and perhaps an elephantiasis formation the diagnosis is not at all difficult to make. It is in such cases as our No. 4 where the diagnosis is difficult to make and it may perhaps be verified only after a most careful examination with histological methods. Confusion with lipomatosis is probably most liable to give trouble as there are some cases reported where there are multiple localized lipomas with elephantiasis formation and pigmentations, moreover with a history of the familial tendency. Perhaps histological examination would show some of these cases to be true cases of von Recklinghausen's disease but the distinction should be kept in mind and we would refer the reader to the excellent article of Lyons<sup>12</sup> on "Adiposis and Lipomatosis."

Pathology: Since the early part of the last century multiple tumors of the nerves have been known and there has always been a great deal of discussion as to their origin. The view of von Recklinghausen has already been stated, later in 1898 he felt that the tumors should be called fibromas instead of neurofibromas, believing that the essential feature was an overgrowth of the connective tissues of the endo and perineurium and that the term neuroma should be used only for tumors formed of proliferative nerve cells. However, several workers, among them Knauss<sup>10</sup>, have described multiple subcutaneous growths of this sort in which numerous ganglion cells were found, and Hook<sup>9</sup> reports his case and 34 others of ganglioneuromata, 10 of them being of the adrenal. In four of these cases there were multiple skin tumors. Certainly these did not arise from connective tissue. Again Gen-erisch<sup>4</sup> and several others have noted a proliferation of the sheath of Schwann but thinking it to be of mesodermal origin have regarded the tumors as essentially fibromatous. However, the excellent work of Kohn<sup>11</sup> and the work of Harrison<sup>6</sup> on the embryos of *Rana esculenta* and *sylvatica* have shown conclusively that the sheath of Schwann is ectodermal in origin. Several workers had already called attention to the fact that the optic and olfactory nerves were devoid of a sheath of Schwann and they have never been found to be affected with a true neurofibromatosis or better neuromatosis. Therefore Verocay<sup>17</sup> has lately come to the conclusion that the



growths are derived either from the cells of the sheath of Schwann or from the less differentiated precursors of the same. Consequently the tumors derived from these imperfect neurons should be termed "neurinoma," and at the same time with the overgrowth of the neurogenous tissue there may be an overgrowth of fibrous tissue as is found in connection with scirrhus cancer. Also, there may be an accompanying serous infiltration and edema passing into an elephantiasis formation as was seen in our cases. Though it seems quite probable too that Bruns' explanation is correct; that the fibrous tissue overgrowth may obstruct the lymph flow and cause the accumulation of fluid in the tumors.

Thus far in our cases we have been unable to find any such stain or stains which would enable us to differentiate the nuclei of the connective tissue from those of the sheath of Schwann. Certainly, however, there appeared to be an increase in the number of the nuclei of Schwann's layer, but in no case were any ganglion cells found. In all but one of the cases the nerve tissue was clearly defined and appeared to be normal. In our last case, however, the nerves were not sharply demarcated from the surrounding fibrous tissue but appeared to be a part of the same, and it was impossible to distinguish the nuclei of Schwann's layer from the nuclei of fibrous tissue. This requires further study and we hope to go into the pathology more extensively in the future.

Treatment: Of this little need be said as it all depends on the case and how affected. As in our case No. 1 the small tumors may be excised because of pain. The "lappiger" tumors of the face and neck are the ones most often calling for surgical attention and it may require several operations before sufficient tissue is removed. But as has been shown in our case No. 4 there is a frequent chance of their recurrence and 12% of the Ranken-neuromata undergo sarcomatous change. The patients with the large elephantiasis variety bear operation very poorly and interference is to be discouraged.

#### SUMMARY.

In four cases of von Recklinghausen's disease, occurring at the Lakeside Hospital in the past 10 years, three patients had multiple cutaneous tumors and pigmentations; while in

three of them large Ranken-neuromata, two of the face and one of the back were found. In one patient an immense neuroma lymphangiectatica of the sternum was present. No especial functional disturbances were noted except pain in the cutaneous nodules in one of the cases and severe frontal headaches in another.

In two of the cases the tumors were congenital, in another the growths were present for years; while in another trauma at the age of two years was given as the cause of the growth. Heredity was present in but one case, the patient's mother and three sisters being affected to his knowledge.

Recurrence of a Ranken-neurom of the face, following operation was found in one case, but there was no sarcomatous change as is found in 12% of such cases.

In three of the cases histological examination revealed fibromata with enclosed nerves; while in the other patient the tumors were cut from nerves at the time of examination, though nothing was said of nerve tissue in the histological description of the sections.

It was impossible to corroborate Verocay's findings that the tumors arise from the sheath of Schwann or its precursor neurons and therefore should be called neurinoma. However, in one case the nerves were not well defined from the surrounding fibrous tissue and there was a marked increase in the nuclei of the sheath of Schwann.

In conclusion the writers wish to express their great indebtedness to Dr. O. T. Schultz of the Department of Pathology of Western Reserve University for his many suggestions and for the taking of the photomicrographs. We also wish to thank the physicians already mentioned for the use of their cases.

#### LITERATURE.

1. Adami, J. G.: Principles of Pathology Lea & Febiger, Philadelphia, p. 759, 1910.
2. Bruns, P.: Das Ranken-neurom. Virchow Archiv, Bd. 50, 1870, s. 80-113.
3. Czerny V.: Eine Elephantiasis Arabum Congenita mit plexiformen Neuromen. Archiv f. klin. Chirurgie, Bd. 17, 1874, s. 357-384.



4. Generisch, A.: Multiple Neurome. Virchow Archiv, Bd. 49, Heft I., 1870, s. 15-48.
5. Harbitz, F.: Multiple Neurofibromatosis. Archiv Int. Med., Vol. 3, 1909, p. 32-65.
6. Harrison, R. G.: Experiments on the Development of Peripheral Nerves. Amer. Jour. Anat., Vol. 5, 1906, p. 121-131.
7. Hektoen and Preble: A Case of Multiple Fibromata of the Nerves. Amer. Jour. Med. Sci., 1901, Vol. 121, p. 1-27.
8. Hirst, B. C.: A Note on the Etiological Influence of Pregnancy upon Mollusum Fibrosum. Amer. Jour. Obstet., Vol. 63, 1911, p. 256-257.
9. Hook, G.: Ein Ganglioneurom der Nebenniere. Frankfurt. Zeitschr. f. Path., Bd. 7, 1911, Heft I, s. 135-149.
10. Knauss, K.: Zur Kenntniss der ächten Neurome. Neuroma verum multiplex amyelinicum gangliosum. Virchow Archiv, Bd. 153, 1898, Heft I, s. 29-60.
11. Kohn A.: Ueber die Entwicklung des Sympathischen Nervensystems der Säugetiere. Archiv f. Mikr. Anat., Bd. 70, 1907, s. 266-317.
12. Lyons, I. P.: Adiposis and Lipomatosis. Archiv. Int. Med., Vol. 6, 1910, p. 28-120.
13. Prudden: Multiple Neuromata. Amer. Jour. Med. Sci., 1880, Vol. 80, p. 134-158.
14. von Recklinghausen, F.: Ueber die multiplen Fibromen der Haut und ihre Beziehung zu den multiplen Neuromen. 1882.
15. Seefelder, R.: Beziehungen zwischen Hydrophthalmus congenitus und Neurofibromatose der Gesichtshaut. Lubarsch-Ostertag Ergebniss. d. allgem. Path., Bd. 14, 1910, s. 729.
16. Soldan, R.: Casuistischer Beitrag zur Lehre von der histogenetischen Einheit der Neuromata, Fibromata Mollusca und der Elephantiasis congenita neuromatodes. Inaug. Diss., Berlin, 1896, s. 1-47.
17. Verocay, José: Zur Kenntniss der Neurofibrome. Beiträge zur path. Anat. und allg. Path., Bd. 48, 1910, s. 1-70.
18. Virchow, R.: Die krankhaften Geschwulste. 1863.

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### Appendicitis During Pregnancy and Labor.

By A. H. BILL, M. D., Associate Professor of Obstetrics, Western Reserve University, Cleveland.

Appendicitis during pregnancy and labor is generally recognized as being a very dangerous complication, but the peculiar dangers attending it during this period have probably

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been too little emphasized and somewhat overlooked. In view of this fact it is the writer's intention to bring up this subject, not so much from a surgeon's point of view as from that of the obstetrician, and to illustrate the possibilities and dangers with typical cases.

As to the frequency of appendicitis during pregnancy or labor, statistics are not so plentiful as could be wished, but the following will give a fair idea of its frequency.

Rosner found 22 cases in 1500 pregnancies, Oordt, at Rotterdam, found three cases in 10,000 pregnancies. Lobenstine reported five cases in 30,000 pregnancies at the New York Lying-in Hospital. Treves reported 1,000 operations for appendicitis in which six were during pregnancy. Richard C. Norris found that of 445 operations for appendicitis at the German Hospital in Philadelphia six were during pregnancy.

Of the larger collections of cases, Babler found 235 cases in the literature, Renvall 253 cases, and Myer 143 cases. I shall quote the findings of Babler as being illustrative of the usual results. Of these 235 cases 207 occurred during pregnancy, and in 203 of these the appendix perforated or was gangrenous. Of the 103 perforative or gangrenous cases 89 were operated upon, 36 mothers dying and 53 recovering, while all of the 14 not operated upon died. Of these 103 perforated cases 80 aborted either before or after the operation, about the same number aborting before as after the operation. Of the 104 non-perforative cases 50 patients were operated upon with one death while of the remaining 54 who were not operated upon, four died. Of these 104 non-perforative cases, 13 aborted, seven of those operated upon and six of those not operated upon. In those cases operated upon before perforation the mortality was 2%, while in those operated upon after perforation the mortality was 40.4%.

Pinard reported 30 cases with the deaths of 10. Bourgee collected 31 cases with a mortality of 41%, and in 58% of these cases pregnancy was interrupted. In Renwall's collection of 253 cases, 153 were associated with free or encapsulated pus. Of 50 cases operated upon before perforation pregnancy was interrupted in about seven cases, showing that the rule would be that pregnancy is not interrupted by the operation.



The reasons for the increased severity of cases of appendicitis complicating pregnancy are many. Before the third month pregnancy probably has little or no effect upon the progress of appendicitis, but after the third month the uterus rises out of the pelvis and may encroach upon the site of the appendix. Waldeyer showed that the pregnant uterus pushes the cecum upward and backward so that in cases of old chronic appendicitis this disturbance of the normal position might furnish an exciting cause of a fresh exacerbation. Of the cases reported by Babler 75.7% occurred after the third month. When an abscess forms after the third month the uterus may form one wall of it. In this case abortion is practically sure to follow, the intermittent contractions resulting in a marked disturbance of the abscess walls and, after the emptying of the uterus, in an actual removal of one wall of the abscess. Furthermore the infection may reach the uterus itself by direct extension.

The constipation so commonly associated with pregnancy may be a predisposing cause of appendicitis. Again, cases have been reported in which dense adhesions between the uterus and the appendicular tissue interfered with the normal contractions of the uterus.

The danger associated with appendicitis complicating pregnancy increases progressively with the stage of the pregnancy, being greatest at and near full term. Pregnancy may undoubtedly precipitate an exacerbation of a chronic appendicitis especially when the appendix has become adherent to the uterus tube or ovary, but, on the other hand, it is very questionable whether it predisposes to a primary attack.

That the diagnosis of appendicitis during pregnancy, especially in the later months, should offer some difficulty is evident. At such a time the physician is very apt to attribute any pain to the uterus and hence considerable delay may occur before the diagnosis is made. The vomiting associated with the appendicitis may also accompany labor pains. Before the third month the diagnosis should not be particularly difficult, except that one must distinguish it from extra-uterine pregnancy: here the differential diagnosis would depend upon that between an intra-uterine pregnancy and extra-uterine pregnancy and need not be considered here. When the at-

tack of appendicitis comes on during labor the symptoms are so masked as to make the diagnosis especially difficult. Still, localized tenderness and muscle spasm though slightly higher than usual, are probably in most cases fairly well marked, though palpation is somewhat interfered with by the large uterus.

The following typical cases, which are directly opposite in their outcome, show nicely the possibilities as well as the dangers of such cases:

Case I. The patient, in the thirty-sixth week of her third pregnancy, was seized with pain in the epigastric region at 10:00 a. m. The pain was intermittent in character and at first rather diffuse, later becoming localized in the right lower quadrant of the abdomen. There was nausea and vomiting, but no chill. The temperature at noon was 99.8° F. and the pulse rate was 100. The pains continued about the same in character throughout the afternoon and the temperature rose to 100.8° and the pulse to 110 at 7:00 p. m. At this time the tenderness was definitely localized on the right side, slightly higher than McBurney's point and there was definite muscular spasm on palpation over the point of tenderness. No uterine contractions were observed. The urine was normal. The patient was removed to Lakeside Hospital where the appendix was removed by Dr. G. W. Crile. It was found to be the seat of an acute catarrhal inflammation, but was not gangrenous or perforated. The patient made an uninterrupted recovery and the pregnancy continued until full term, four weeks later, when labor set in normally. The patient was delivered with forceps, partly to relieve the strain of the second stage pains upon the operation scar and partly on account of an unfavorable position of the head. The uterus in its action showed no complication, such as adhesions, which could be attributed to the operation. There had been no previous history of appendicitis.

Case II. Primipara, aged 23, was in the thirty-seventh week of her pregnancy. The course of the pregnancy had been uneventful up to this time. At 9:00 a. m. the patient's husband telephoned that for two or three hours she had had slight labor pains and had vomited. He wasn't sure that the pains were strong enough to warrant sending her to the hospital where she had arranged for care, but, as a safe precau-



tion, he called an invalid carriage and transferred her there. From his description there was apparently nothing unusual about the pains, but when seen at the hospital it was found that the patient was not having uterine contractions but that the pain was referred to the right side of the abdomen and a definite area of tenderness with slight rigidity was found at about the usual site of the appendix. The patient was still nauseated. On further questioning it was found that she had had a slight chill at the beginning of her symptoms. The temperature upon admission to the hospital was 99.5° F. and the pulse 98. The diagnosis of appendicitis was made and the advisability of immediate operation considered. The symptoms seemed mild but in the afternoon, while arranging for consultation, true labor pains began. When it was found that the patient was in labor preparations were immediately made for delivering her so as to avoid the dangers resulting from the intermittent rising up of the uterus with its varying pressure upon the appendix and also to relieve the straining accompanying the expulsive pains. A living child was delivered with forceps. Up to the time of anesthetizing the patient for delivery at 6:00 p. m. the temperature had gradually risen to 103° and the pulse rate to 122.

After the delivery of the placenta there was a moderate hemorrhage, due to poor contraction of the uterus, and the latter was packed to control it. This suggested the possibility of the uterus being held by adhesions which interfered with its normal action. After the completion of labor the patient complained of no pain; palpation failed to reveal, except in very slight degree, the tenderness present before labor, and there was absolutely no muscular rigidity. The temperature dropped gradually during the night and the next morning was 100.2° and the pulse rate 104. The symptoms were apparently subsiding somewhat. Later in the day symptoms of general peritonitis appeared and the patient was transferred to Charity Hospital where an operation was performed by Dr. C. A. Hamann. Free pus was found in the peritoneal cavity and a gangrenous, perforated appendix. The patient died about 20 hours later. One interesting point should be mentioned in connection with this case, viz., that on the morning after delivery, at a time when the general symptoms appeared to

be subsiding, the differential blood count showed 97° of polymorphonuclear neutrophiles.

In this case undoubtedly rupture of the abscess occurred at the time of delivery, the uterus very likely having formed one wall of the abscess, a fact which could not be determined. The absence of rigidity after labor, persisting as long as it did, was attributed to the laxity of the abdominal muscles, which after the distension during pregnancy had as yet not regained their tone, thus masking the symptoms.

In these two cases several facts stand out prominently. In the first is shown the possibility of removing the appendix as late as the eighth month without interrupting pregnancy, the labor presenting no complication which could be attributed to the appendectomy. The second case shows the ever present danger of labor pains starting up, and the disastrous effect resulting therefrom: secondly the exaggeration of the well known "treacherous calm" in the symptoms following perforation on account of the laxity and lack of tone of the abdominal muscles. The early perforation and rapid progress of the infection in the face of comparatively mild symptoms is also shown. Neither case offered much difficulty in diagnosis, the symptoms being fairly typical and the physical signs fairly well localized. The early onset of labor in the second case emphasized the necessity of haste in removing the appendix in these cases as soon as the diagnosis is made, and not waiting to determine the severity of the attack.

In conclusion, let me outline the advisable course to follow in such cases. The treatment during the first three months should be the same as in the non-pregnant state, but if immediate operation is not performed and the patient is carried through the attack without removal of the appendix this should be done soon afterward, since the danger of recurrence later in pregnancy at a more dangerous period is great.

After the third month the treatment should be immediate removal of the appendix as soon as the diagnosis is made since the high mortality of this complication is due to delay. This applies especially to the later months when, due to the greater congestion and increased intra-abdominal pressure, the inflammatory changes are apt to be very marked, with



early perforation. The indication for operation should apply to the mild cases as well as the severe ones and no plan of delaying to determine the severity of the attack is justifiable. If an attack of appendicitis comes on during labor the uterus should be emptied without much delay and then the appendix removed. If the attack comes on before labor even if at full term the uterus should not be emptied until after the appendix has been removed or the abscess drained if pus has developed. Labor should by all means be avoided if possible since the intermittent contractions of the uterus and then the sudden reduction in its size must certainly have a disastrous effect, especially if an abscess has formed. Draining an abscess need not necessarily interfere with pregnancy. Such a case is on record in which an appendical abscess was incised and drained and pregnancy continued until full term. This however is probably the exception rather than the rule. If general peritonitis is already present the uterus should first be emptied by the vaginal route by a rapid method and then the abdominal operation performed.

The same necessity for rapid interference holds good when symptoms of appendicitis appear during the puerperium. In a large percentage of cases the exacerbation is due to the breaking of adhesions or rupture of a pus sac by the sudden decrease in size of the uterus, a possibility which must ever be borne in mind.

*310 Osborn Bldg.*

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### **The Activity of the City of Charlottenburg, Germany, in the Reduction of Infant Mortality.**

By H. J. Gerstenberger, M. D., Medical Director of the Babies' Dispensary and Hospital, Assistant Professor of Pediatrics, Western Reserve University, Cleveland.

A proper introduction to the talk which I am about to give you on the activities carried out by the city of Charlottenburg, Germany, in the fight against infantile mortality, would be a description of the social organization of Germany as a government. But suffice it today to simply state the fact, paraxodical as it may seem, that the monarchy Germany, today, represents the most socially free country in the world. She does more than

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*Read before the Ohio State Medical Association, May 9, 1911.*

any other power to promote the longevity of her people by prevention of disease, social evils and accidents, and she does this through her reliable and able government, which is so reliable and able because it is firstly, honest; secondly, well organized; and thirdly, thorough, in that it goes to the very bottom of every problem. A further characteristic of the German government is that it has the power to enforce the existing laws, and, which is more important, that it makes use of this power. When we Americans travel abroad, we are very frequently horrified by the so-called red tape, but if we were all in a position to remain in Germany for a longer time than is customary for most of us to stay away from America, and if we lived so that we would be in a position to mingle with the various classes of Germans to understand them, and learn their daily mode of living, we would come to see that much of this dread for the red tape is imaginary, and that the good that it performs in making the German government well organized, reliable and thorough, far outweighs the minor disadvantages, caused by the requirements to report many little things we absolutely neglect and consider unimportant in America. This is why, too, the German statistics can be absolutely depended upon, whereas the American ones are today absolutely worthless and they will continue to be so, if we call worthless, as we should, everything that is not absolutely correct, until we have the power to collect these statistics and the organization to efficiently make use of this power. It seems to me almost as if the collection of reliable statistics in America would cause those who are to give the desired information more trouble and annoyance, commonly called red tape, than is the case in Germany today, for the simple reason that the individuals, in the German government's employment, do not feel themselves as independent and as important as Americans in civil service are apt to be.

All governmental work in Germany, the social as well as the other, has been so well thought out and systematized, that for the usual solution of problems and conditions, routine methods of procedure have been established. The fundamental characteristic of these has been, and is still today, thoroughness, i. e., arranging the questions, etc., so as to enable one to get at the bottom of the thing worked for. There was a time when



German bureaucracy considered nothing else, before it would attempt to take hold of any given problem, than filling out the preliminary queries. But recently a decided change for the better can be noticed in this position, inasmuch as they now see the necessity of temporarily neglecting this otherwise primary requirement in cases of emergency. For example, any one of the nurses of the various dispensaries, can, on her own responsibility, order help in any form, be it food, clothing, physician's advice, etc., free of cost, providing she is convinced that the people are really in need. The charity department of the city then investigates and decides for itself whether or not the people were in a position to pay for the help that they have received. If the finding is in the affirmative sense, then they arrange with the family for the partial or entire, immediate or gradual payment of the debt, as the circumstances may be. So really nobody need suffer if there is any doubt as to his worthiness, simply because there is some doubt as to his worthiness. The government is willing to take the risk of having to pay the entire bill. In this matter the routine procedure is not undermined and also no individual necessarily need be harmed in any way by the government's policy.

Today, then, I desire to show you how comprehensively the municipalities of Germany are attacking high infant mortality by telling you, as an example, what the City of Charlottenburg is actually doing today. Of course, it is true that this city is more fortunately situated financially than possibly any other in Germany, and that therefore, it holds the first place. This does not mean, however, that other municipalities in Germany are far behind Charlottenburg, and that therefore, the description of Charlottenburg's activities really paints the picture of the work carried out by the cities of Germany in too bright a color. It is a fact that municipalities of any size at all are doing much more for the reduction of infant mortality than any city in the United States.

During the year 1909, the City of Charlottenburg spent 115,289 mks., about \$29,000.00 in our money, which is, however, equal to about \$50,000.00 in value when applied here. The population of Charlottenburg during 1909 was about 275,000. How large this contribution by the City of Charlottenburg really

is will be better appreciated by applying the proportionate expense to the City of Cleveland. This would mean that the City of Cleveland, in order to do as much work as the City of Charlottenburg, would spend approximately \$100,000.00 a year for

TABLE I.

Cost of Activities Carried on by the City of Charlottenburg (Germany) 1909.

Milk ( $\frac{1}{2}$ and 1 litres) .....	36,770.45	Mk.
Salaries for physicians .....	6,875.00	"
"    "    nurses .....	10,319.83	"
"    "    clerks .....	1,950.00	"
Rents .....	7,687.50	"
Printing, etc. ....	934.19	"
Fares .....	314.68	"
Modified milk .....	7,519.77	"
Heating, lighting, cleaning .....	4,049.97	"
Bottles, lost and broken .....	451.03	"
Special foods .....	143.05	"
Repairs .....	1,378.22	"
Examinations of milk .....	300.00	"
Extras .....	1,424.85	"
Aid to pregnant mothers .....	5,067.80	"
Premiums to nursing mothers .....	28,753.75	"
Boarding of infants at convalescent home.....	1,348.96	"
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	115,289.05	"
Subsidy to temporary mothers' and infants' home.....	10,000.00	"
Subsidy to infants' clinic .....	3,000.00	"
Cost of care of 176 infants at infants' clinic .....	27,294.25	"
Cost of care of infants and mothers at Kaiserin Auguste Victoria Haus .....	2,209.00	"
Subsidy to Association aiding at confinement at home....	3,000.00	"
Cost of care to families of city employees .....	458.00	"
Running expenses of official guardian's office .....	16,000.00	"
Running expenses of city maternity and mothers' and in- fants' temporary home .....	100,000.00	"
Fees to midwives .....	9,397.00	"
	<hr/>	
For 1909: Grand Total .....	286,647.30	"

this work. This sum, namely, 115,289 mks., simply covers, as you can see from the accompanying table, the running expenses of six prophylactic dispensaries and milk laboratories, which includes besides salaries, milk, preparation of milk, heating, lighting, bottles, aid to pregnant mothers, and, especially, premiums to nursing mothers. How important the German physicians consider the giving of premiums can be seen from this table, which shows that practically 25% of the entire expense goes for this one item. The above mentioned activities do not represent the entire work of the City of Charlottenburg in the care of mothers and infants, as you can see by referring again to table No. 1. As you see, the 115,289 mks. swell to 286,647 mks., which



represents the real total expense to the City of Charlottenburg for activities carried on to protect and care for infants and their mothers. Of course, this includes maternity homes, infant clinics, municipal guardianship, etc.

Table No. 2 gives a better summary of the activities themselves, and also explains, to a certain degree, the manner in which this work is done. As you see, 14 of these are entirely

TABLE II.

Activities of the City of Charlottenburg to Reduce Infant Mortality.

1. Free meals for needy pregnant women (four weeks before and 10 days after confinement) carried out by private association.
2. Free board and lodging for needy pregnant women (at maternities, infants' homes, etc., providing woman helps at work).
3. Free confinement for needy women (at city maternities, Kaiserin Auguste Victoria Haus, and by midwife in home).
4. \*Free housekeeper at home for needy women, carried on through private organization at confinement.
5. \*Free set of clothes at home for infant, carried on through private organization.
6. Immediate report of birth to city hall, prophylactic dispensaries and official guardian's office.
7. Six prophylactic babies' dispensaries.  
Premiums to nursing mothers.  
Free artificial feeding if necessary.
8. Supervision of all boarding-homes by police, dispensary nurses and guardians. All police power.
9. Temporary homes for mothers and infants. Must nurse at least three months, can stay two years.
10. Observation-station for doubtful social cases at temporary homes.
11. Stopping-over station between changes of boarding houses.
12. Medical dispensaries.
13. Beds for ill infants at four institutions.
14. Beds for convalescent children, during summer at Eichkamp.
15. Family house for families who cannot support themselves.
16. Professional (city) guardianship of all illegitimate infants and orphans.

\*Supported partly by the municipality. The others supported entirely by the municipality.

carried by the municipality; only two of the 16 are partly financed by the City of Charlottenburg. This financial aid really is a subsidy, and this is, paradoxical as it again may seem, characteristic of the German municipalities. If they are convinced that a certain work is necessary and is in reality the duty of the city, they will, providing that they cannot do the entire work alone, temporarily aid a private organization in its work by contributing as much money as they possibly can spare. Of course, it is necessary that the private organization is reliable and doing thorough work. Here is a point that can well be

followed by American municipalities for two reasons: In the first place, because it will take relatively much longer for the cities over here to get sufficient funds to alone carry the entire work, as it should be carried and, secondly, because of the difficulty in getting any part of a municipal administration developed to the degree, which is necessary for efficient service, simply because of the uncertainty due to political storms. It seems to me strange that if Germany where the government is honest and efficient and where the government fully realizes to the fullest extent that it is its own duty to do these things, I say if Germany is willing, and anxious, and eager to help private organization in doing a work which in reality is that of the government, why it is not more common for American municipalities to take the same course. This has to a certain degree, I am glad to say, been realized in Cleveland during the last year, inasmuch as the Department of Health pays for the salaries of three of the nurses doing work for the Babies' Dispensary.

Although the 16 statements in table No. 2 are sufficient to convey a proper conception, at least to medical men, of the character of the work and of the manner in which it is carried out, I should like to elucidate two or three of them more fully because the exact knowledge of their working seems important to me.

Item 6. Three copies of the birth certificates are filled out and immediately one sent to the City Hall, the second to the prophylactic dispensary of that district, and the third to the official guardian's office. This includes every birth that occurs in the city, no matter whether in the home of the millionaire or in the home of the poor man. In this manner the nurses at the prophylactic dispensaries are enabled to go to the mothers and the babies early enough to get a proper chance at doing prophylactic work. The nurse, at the receipt of the reports, decides from the description given on these reports whether it is probably worth while for her to go to some of the families. I mean whether these families are not in such surroundings that they will probably not require her aid. The third copy is sent to the official guardian's office, in order to enable him to immediately take charge of the care of any illegitimate child or orphan.



Item 7. The premiums are given to nursing mothers only, usually beginning with the third week and continuing for 12 to 14 weeks, except during the summer when it is prolonged, providing that the mothers do really nurse their children, and further that they present the children regularly at the prophylactic dispensary where the physician can observe and control the development of each child. The premiums consist usually of a quart of milk a day for the mother. In some instances even more is given, and it is allowed, if conditions warrant, to give money up to a certain sum, providing that this money be used for food. When the mother of an illegitimate child is too poor to support herself without working, the municipality, through one of its departments, supports her by giving her the same amount of money that it would pay for boarding that child in the home of a professional foster mother. At first it might seem as if this would stimulate the production of illegitimate children, but this is not so. It simply provides for the child the best care that the city can give it for the money that it can afford to expend, for the city realizes that no foster mother will care for an infant as well as the infant's own mother.

Item 8. The manner in which the boarding homes are supervised gives a good example of the systematic, efficient and thorough work carried out by German institutions, accompanied with a very important aid—police-power. The guardian's office is responsible for the welfare of its charges and the guardian has as assistants on his staff, firstly, members of his own staff; secondly, members of the police force; and thirdly, the prophylactic dispensary nurses. Thus three different organizations are looking after the same child from three different viewpoints, and yet all are working as one organization, and working for the welfare of the same child. If, for instance, the dispensary nurse, while engaged in her own dispensary work, sees that a foster mother is really neglecting her child she has the power to then and there remove that child from this home and provide better care for it, acting for this part of the work as a member of the staff of the guardian's department. I might add that before any boarding home is considered acceptable by the guardian's office, it is first necessary that the police, the dispensary nurse, and a member of the guardian's own staff, separately

investigate and report on the conditions; and finally, even though all three investigators may have reported favorably on the given home, it has to call up the Tuberculosis Dispensary and see if any member of the family has had tuberculosis or if any tuberculosis has even been present, to the knowledge of the department, in this home. The keynote to this work is not so much the ideal organization as it is the power that can be and is used to make the individuals live up to the rules.

Item 16. The city is by law guardian of every illegitimate child and orphan, and continues as such until a certain age, I believe 14 to 16 years, unless some perfectly reliable and able individual desires to adopt the child or be responsible for its welfare.

In conclusion, I wish to call your attention to two points, which these facts regarding the activities of the German municipalities impress upon me: firstly, that Germany, through its municipalities demonstrates that it has sufficient confidence in the future of its citizens, and in the correctness and soundness of the plans prepared to prolong their life and improve their value, to spend enough money, even though it go into debt, to grapple with the problems rightly and, secondly, that the municipal government is broad enough and wise enough to see that the temporary subsidizing of private reliable and efficient associations doing municipal work is economy.

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### Vaginal Hemorrhage in the New-Born.

By LAWRENCE A. POMEROY, M. D., Cleveland.

The following history is that of a case which recently came under my observation:

Elizabeth B. was born June 27, 1911. Her parents were both healthy. She was their first child and was born after an easy labor. The cord was ligated after it had ceased to pulsate. She was a well developed and well nourished baby, weighing  $6\frac{3}{4}$  pounds. Nothing abnormal was noted until the third day, when a blood stain about two cm. in diameter was noted on the child's napkin. The napkin was changed six to eight times a day and this stain was constantly present. The bowels moved



and urine was passed with no bleeding. The external genitalia appeared normal, but from beyond the hymen there was a slight oozing of blood. The flow continued, about as when first noticed, for three days and then gradually grew less, ceasing when the child was eight days old.

No treatment was employed except a boric acid wash to the external genitalia. There has been no recurrence of the bleeding up to the present time (August 1, 1911).

Textbooks and the literature contain but few references to similar cases. The following is a summary of the reported cases:

Definition: Three varieties of hemorrhage from the vagina in children are described by Busey<sup>1</sup>. The first is true precocious menstruation. It is characterized by periodical recurrences and is accompanied by the usual external phenomena of premature puberty. In the second form there are irregular recurrences of the flow but the hemorrhage ceases entirely before the twelfth or eighteenth month. In this form there are none of the external phenomena of premature puberty. The third variety occurs during the puerperal month; subsides spontaneously; does not recur and is not associated with any signs of puberty.

Historical Note: The first recorded case is that of Bourgeois<sup>2</sup>, 1642. Cullingworth<sup>3</sup>, in 1876, collected 32 cases. I have been able to find 19 cases reported since that time. Either the condition is rather uncommon, or else the cases that have been observed have not been considered worth reporting.

Etiology: The etiology is rather obscure. The fatal case of Eröss<sup>4</sup> was in a markedly cyanotic, premature child, and throws no light on the etiology. Doléris<sup>5</sup> has reported three fatal cases, one associated with umbilical infection and diarrhea, one with pericarditis, ecchymoses and diarrhea (the umbilicus being normal) and one with vomiting and diarrhea. In one fatal case reported by McKerron<sup>6</sup>, the vaginal hemorrhage seemed merely one manifestation of hemophilia.

Camerer<sup>7</sup> thinks that early ligation of the umbilical cord may cause pelvic congestion and thus bring about the vaginal hemorrhage. In the case reported above this was not a factor for the cord was ligated after it had ceased to pulsate.

Pathology: In four of Cullingworth's<sup>3</sup> cases the labia were enlarged or congested, but in all the other cases the external genitalia were normal.

In the fatal case of Eröss the uterine mucosa was congested and there were two small clots in the cavity of the uterus. In the case with autopsy, reported by James<sup>8</sup>, the uterine mucosa was red, swollen and covered with blood. No microscopical examination is recorded in either of these cases. In the case of Doléris<sup>5</sup>, which came to autopsy, the uterus and vagina were normal except for congestion, which was common to all the pelvic viscera.

Dewar<sup>9</sup> reports a case in which the vaginal hemorrhage was followed by a milky secretion from the child's breasts, with no other signs of puberty.

Bednar<sup>10</sup> has noted that intestinal and genital hemorrhages may occur simultaneously in the recently born child.

Symptoms: Slight restlessness may precede the hemorrhage by a few hours. The hemorrhage itself is rarely alarming, usually amounting to no more than a spotting of the napkin. The other symptoms observed have been those of some accompanying disease.

Diagnosis: The appearance of blood from beyond the hymen in a new born infant is enough to establish the diagnosis. However, it is well to heed the warning of Kelly<sup>11</sup> and always consider the possibility of the hemorrhage being due to a new growth of the vagina, uterus or ovaries.

Prognosis: In the uncomplicated forms of hemorrhage the prognosis as to life is uniformly good. In the type occurring during the puerperal month the flow, usually commences on the third or fourth day and ceases in from three to five days, not to recur. In the complicated forms the prognosis is that of the associated disease.

Treatment: In the simple form cleanliness of the vulva is all that is required while waiting for the hemorrhage to stop. If the hemorrhage does not cease spontaneously in five or six days the use of horse serum subcutaneously may be advisable, although its employment in these cases has never been recorded. In the complicated forms the treatment is that of the associated disease.

A table showing the cases recorded since Cullingworth's<sup>3</sup> collection of 32 cases follows: One case of Jonathan Hutchinson<sup>12</sup>, in which the hemorrhage came "from the vagina (or bowel)," is not included.



No.	Observer	Age at Onset of Flow. Duration of Flow.	Recur- rence. Abnormal Appear- ance of Genitalia	General Condition	Remarks	Where Recorded
1	Roulin	5 days 2 days	None None	Good		Union Med., Par., 1887, 3 s., LXIV, 283.
2	Busey, S. C.	5 days 4 days	None None	Good		Tr. Wash. Obst. and Gynec. Soc., 1889-90, III, 25-32.
3	Busey, S. C.	5 days 4 days	None None	Poor	Alum solution applied to vulva.	Ibid.
4	McArdle, Thos. E.	5 days 4 days	None None	?	Borated cotton applied to vulva.	Tr. Am. Assn. of Obst. and Gynec., III, 1890.
5	McArdle, Thos. E.	5 days 4 days	? None	?	Borated cotton.	Ibid.
6	James, C. H.	4 days 1 day	...? Not men- tioned	Weakly Premature	Died at 5 days. Autopsy. Uterine mucosa red, swollen and covered with blood	Tr. Obst. Soc. Lond., (1890) 1891, XXXII, 66.
7	Eröss	3 days 2 days	? None	Good		Arch. f. Kinderh., 1891-2, XIII, 172-4, Ibid.
8	Eröss	4 days 2 days	? None	Good		Ibid.
9	Eröss	4 days 4 days	? None	Good		Ibid.
10	Eröss	4 days 4 days	? None	Good		Ibid.
11	Eröss	4 days 5 days	? None	Good		Ibid.
12	Eröss	3 days 1 day	? None	Premature; Cyanotic; subnormal tem- perature.	Died at 4 days. Autopsy. In- jected uterine mucosa. Two small clots in uterus. No mi- croscopic ex- amination.	Ibid.
13	Doléris	4 days 8 days	? None	Lues suspected. Diarrhea and vomiting. Bleeding from nose and navel Ecchymoses.	Left hospital at 12 days. Probably died soon.	Med. inf. Par., 1898, 493-508.
14	Doléris	5 days 4 days	.... None	Diarrhea. Bleeding from navel.	Died at 8 days No autopsy.	Ibid.

No.	Observer	Age of Onset of Flow. Duration of Flow.	Recur- rence. Abnormal Appear- ance of Genitalia	General Condition	Remarks	Where Recorded
15	Doléris	5 days 4 days	.... None	Diarrhea, Ecchymoses. Navel normal.	Died at 9 days. Autopsy. Uterus normal. Pericarditis.	Ibid.
16	Doléris	4 days 6 days	? None	Good		Ibid.
17	Doléris	7 days 3 days	None None	Vomiting and diarrhea. No other hemorrhages.	Died at 10 days.	Ibid.
18	Dewar, Thos. W.	3 days 4 days	? None	Good	At 12 days milky secretion from child's mammae; continued three weeks.	British Med. Jour. June 13, 1908.
19	McKerron, R. G.	4 days 5 days	.... None	Bleeding from scratch on lip.	Died at 9 days. Hemophilia.	Journ. of Obst. and Gynec. of British Emp. Dec. 1908, XIV. No. 6.

## BIBLIOGRAPHY.

1. Busey: Trans. Obst. and Gynec. Soc. of Washington, 1889-95 p. 25.
2. Bourgeois: Observations diverses sur la Sterilite—et Maladies des Femmes et Enfants Nouveaux—naiz. Paris, 1642. Livre 2me, 23.
3. Cullingworth: Liverpool and Manchester Medical and Surgical Reports, 1876, IV, 43-57.
4. Eröss: Arch. f. Kinderh., 1891-2, XIII, 172 4.
5. Doléris: Med. inf. Paris, 1898, 493-508.
6. McKerron: Jour. of Obst. and Gynec. of British Empire, Dec., 1908, XIV, 6.
7. Camerer: quoted by Cullingworth<sup>3</sup>, loc. cit.
8. James: Tans. Obst. Soc. London. (1890) 1891, XXXII, 66.
9. Dewar: Brit. Med. Jour., June 13, 1908.
10. Bednar: quoted by Cullingworth<sup>3</sup>, loc. cit.
11. Kelly: Operative Gynecology. Vol. II, 254.
12. Hutchinson: Archives of Surgery, London, 1892-3, IV, 38-40.

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### Some Indications for the Surgical Treatment of Chronic Gastric Ulcer.

By Frederick C. Herrick, M. D., Associate in Surgery Western Reserve University, Assistant Surgeon to Charity Hospital, Cleveland.

Gastric ulcer is found in 4% of all autopsies. This includes the acute peptic ulcer, commonly called the Cruveilhierian ulcer of young adults, and the subacute and chronic



ulcers of later life. In the decades from 20 to 60 years gastric ulcer is about equally frequent; if the acute ulcer with its acute manifestations is more common in young adults, the chronic ulcer with its persistent or recurrent disturbance of digestion and nutrition evens up the balance in later life. Thus we have an ailment for whose signs the clinician, be he internist or surgeon, must ever be on the alert and many cases have been noted in which the symptoms due to simple gall stone disease or its complications, appendicitis, renal disease, pancreatitis, and, especially pelvic disease in women, have been confused with the symptoms of gastric ulcer. Persistent clinical vigilance is the only price paid for a correct diagnosis in such cases and the return of the patient to health with a diminished or abolished danger of cancer is the result.

Clinical experience and the so-called "living pathology" have taught us that the medical care of acute ulcer, when thoroughly carried out, accomplishes a cure in somewhat over 90% of the cases, as shown by Warren and Schultz, Leube, Riegel, Musser, and Welch; that recurrences from ineffective or trifling medical treatment render the descent to chronic ulcer easy; that, above all, the chronic ulcer, when well established, shows, according to Leube himself, only 50% of medical cures; and that, in the event of such a cure, the danger of damaging adhesions to liver, pancreas intestine or abdominal wall occurring in 42% of chronic ulcers, contractions, stenoses and cancer is ever present. Such a patient with lowered nutrition, so far from being prepared to withstand old age and enjoy its fruits and comforts, is an easy prey to its complications.

From the life history of the ulcer three factors seem to determine its chronicity: first, recurrence after medical treatment; second, actual duration of ulcer symptoms, perhaps with periodic exacerbations; third, the age of the patient.

The 10% of recurrent acute ulcers after medical treatment do not furnish all the chronic ulcers but many occur as a result of local or constitutional conditions later in life and comprize a chronic inflammatory process from the start.

From the standpoint of symptomatology a group of symptoms caused by two conditions, hyperacidity and pyloric spasm, occur from one to three hours after meals, are relieved by taking food, are most common in patients of either sex over 30 years of age, but may be found as early as 25

years of age. The symptoms exhibited by this group are acid or food eructations amounting at times to sudden vomiting, a sense of epigastric weight, distress or actual pain, satiety of hunger early in the meal, persistence of appetite but fear of the resulting distress after hearty eating, more or less loss of weight, energy and ambition. When to these are added the findings from a test breakfast, possibly increased hydrochloric acid, which in the older patients may be absent, or a slightly dilated stomach and the presence of blood either microscopic or occult, the diagnosis of chronic gastric ulceration is as certain as our methods will permit.

As this chronicity develops there is a decreasing chance of medical cure. In the interim between exacerbations, though the patient may feel comparatively well, if operation be done the ulcer is found unhealed. The periodicity of symptoms under medical care, I am sure is often misleading, being rendered more marked perhaps by such treatment, and helps to close the eyes of both patient and consultant to the true condition. In this chronic stage Payr says: "It is certainly the fact that in a little over 50% of the cases a lasting cure is accomplished by medical handling; that in 25% improvement follows, while in the last 25% death from various complications occurs." This is a conservative statement of facts with which the writings of Mikulicz, Robson, Heidenreich, Leube and Mayo agree. Surgery can offer a far lower mortality than this, and it is the duty of every clinician to be accurately informed of and fully appreciate the rapid improvements in the results of surgical treatment.

As the surgery of acute gastric ulcer is the surgery of its complications, recurrent hemorrhage, perforation and stenosis, so the surgery of chronic gastric ulcer is the surgical prevention of its complications. This is a plain case of the acute process in young adults being more amenable to medical care than the chronic ulcer of later life by a proportion, as above mentioned, of about 90 to 50%. It is very necessary to draw the line, as nearly as our methods will permit, between these two groups of cases, and to draw it rationally, with full understanding of the clinical facts. When the condition is considered acute or subacute in early life a thorough medical rest course should be given and not an ambulatory, office consultation, desultory treatment with the patient about



his active duties, where full nutrition and digestion are essential to maintaining even his health, let alone supplying the necessary excess of vitality for the healing of a more or less active defect in the gastric digestion. Temporary abatement of symptoms may be thus attained, but not healing.

It is beyond the shadow of a doubt that inefficient medical care of ulcer cases in early adult life is a frequent forerunner of chronic ulcer in middle and later life. Munro, Mayo and others lay stress on the fact that the majority of these patients have been troubled for years. A protracted history of various more or less severe forms of indigestion is the rule in ulcer occurring from 40 to 60 years of age. Much of this can be readily prevented by a complete appreciation by the general practitioner of these facts and a careful following of one of the well known rest cures for early ulcer. The patient must be made to appreciate the inevitable future if he does not submit and in most cases the practitioner holds a mighty weapon in the suggestion that if the patient's condition persists to the chronic stage surgery is his probable last resort.

The more definite indications for the surgical prevention of the complications of chronic ulcer depend upon three factors: (1) the presence or absence of pyloric obstruction, (2) the effect of a short course of medical care for not longer than four or five weeks, and (3) the age of the patient. A correct appreciation of these three points and their relations to each other will determine the advisability of surgical intervention in chronic ulcer.

**Pyloric obstruction:** No single condition occurring just before or after 40 years of age is more significant and so demands surgical treatment as pyloric obstruction. It is in these cases that gastro-jejunostomy gives its best results, relieving practically all such, and, if they are referred for operation before the patient is too greatly reduced by impaired nutrition and toxemia, shows a very low mortality of not over 1 or 2%. This operation must be used with great circumspection. It is not a cure-all for gastric ulcer. It has certainly gained disrepute by too general use. It relieves intragastric tension, the chief cause of pain; furnishes at least a temporary side exit for stomach contents; favors pyloric relaxation; and no doubt also favors regurgitation of alkaline intestinal juices which partially neutralize the gastric hyperacidity.

When pyloric obstruction is not marked it gives more or less relief in about 40% of the cases. Gastro-jejunostomy does not, however, remove the diseased process. In every patient of middle age or later no operation is complete unless it eradicates the diseased tissue. Such is the conclusion after a large number of observations on cancer occurring at this age as a sequence of chronic gastric ulcer. Pyloric obstruction in a patient past 35 years of age should be recognized as a warning of possible cancer and fortunate is the patient whose chronic ulcer or early cancer causes an appreciable degree of pyloric obstruction. For him the early operation is fraught with a mortality of but 5 to 8%, but the patient with the long standing retention, an infected mucous membrane a lowered vitality from poor nutrition to say nothing of cancerous cachexia, is the one who pays the penalty of delay—a rising mortality dependent upon these factors.

The occurrence of cancer on ulcer has been long a subject of discussion. As early as 1839 Cruveilhier pointed out this possible change in a benign process. Hughes of Edinburgh, in 1844, described one case, apparently the first on record. Five years later Rokitansky wrote: "There are cases in which we can see plainly that a cancer has developed from an ulcer of the stomach." And so the observations might be multiplied, the evidence and belief having gradually gained ground, till today Moynihan's "living pathology" and the numerous ulcer resections have shown the incidence of cancer on chronic ulcers to be far more frequent than clinical observations had led us to believe.

What constitutes cancer is a very large question and but very few, perhaps none, are today qualified to answer it. Perhaps in the present day zeal for seeking out everything cancerous, the observer's judgment may be biased, so that a group of aberrant epithelial cells, readily taken care of in life, seems to the zealous pathologist to differ in no way from cancer. Yet the combined statistics of Virchow, Welch, and Haberlein give 33% of all cancer as occurring in the stomach. Ten observers, including Hauser, Futterer, Haberlein, Welch and Mayo, give from 56 to 100% of cancer originating on ulcer. The same authors give an average of 50% of ulcers, in patients over 40 years of age, as becoming cancerous. Wilson, of the Mayo clinic, gives as high as 68% of such



ulcers as showing cancer. Were there no other possible complications of chronic gastric ulcer these figures, even cut in half, would warrant more radical treatment than gastrojejunostomy in every patient past 40 years of age with ulcer. We have the certainty of at least 90% of surgical cures in ordinary surgical risks, so far has the surgical outstripped the internist's technic in handling this condition.

In the diagnosis of beginning cancer of the stomach we are quite at sea. No modern methods will enable us to discover cancer in the operable stage. We can make a probable diagnosis but determining with certainty, by medical means, between chronic ulcer and cancer in the earliest stage is impossible and according to many authorities cannot be hoped for. All of the evidences, once considered early signs of cancer, are presented from time to time by ulcer. An examination of over 80 authors of the past decade shows that this opinion has gained such strength that today it is overwhelmingly in favor of early interference in chronic ulcer and the older the patient within surgical limits, the greater the demand. Goldschwend says: "When our most accurate clinical methods of history and examination, together with all the aid of the advancement in chemical physiology cannot give a diagnosis in cancer of the stomach in the operable stage it is self-evident we must seek farther for means with which to handle this condition." Mayo remarks, with a vein of humor: "The surgeon should not ask the internist for a diagnosis of cancer of the stomach; if we wait for that we are pretty sure to be too late." Cancer gives no signs which we can read with our present methods. The early exploratory operation is at present our only recourse. Why will we, until we have definite methods, refuse our patients this simple procedure?

The second factor deciding for or against surgical interference in chronic ulcer is the effect of a carefully directed medical rest cure of four or five weeks' duration. The ideal case for this is one before middle life without hemorrhage or pyloric obstruction. Such a patient, having been given a conservative treatment and having recurrence of trouble, should be advised to seek surgical relief, for in a few years he becomes accustomed to his periodic return of gastric distress and acid eructations, accommodates himself to them,

restricts his diet, soon learns what is least liable in his habits to cause distress, is perhaps active in business and needs full nourishment, and before he fully appreciates the fact cancer has developed and instead of a relatively simple surgical procedure under favorable conditions, a resection is necessary during a much lowered stage of nutrition. Surgery travels an uphill road for it was this same aversion to operation in appendicitis, calculi and breast tumor, to say nothing of the acute complications of ulcer, typhoid and various other abdominal conditions, which has been overcome, showing beyond question that these conditions demand surgical treatment. Chronic ulcer occurring after 38 years of age is a surgical disease.

The age of the patient furnishes the third major factor in determining whether a gastric ulcer should be treated medically or surgically. There are certain most definite facts in every clinical history. However uncertain various lines of treatment or points in diagnosis or prognosis may be, we must take the patient's age as a definite factor, also the incidence of cancer at middle or past middle life, the decreasing ability of advancing age to stand operation and the increasing frequency of complications with increasing age. These factors all relate to the relation of the ulcer to the patient's age and render the conclusion inevitable that until medical science possesses both a means of accurate diagnosis in gastric cancer and 90% of cures, surgical observation and removal of all suspicious tissue is indicated. It repeatedly happens that such a chronic ulcer is treated indifferently or surgically without removal and a later report which perhaps is often difficult to obtain shows the sequel. A male of 37 years, a civil engineer, consulted me in 1905 with the clinical signs which rendered the diagnosis of chronic ulcer quite certain. At operation a pyloric ulcer, described then as indurated, was found. A gastro-enterostomy gave relief and was followed by a good gain in weight. In reply to a recent letter seeking to trace some past cases I learn from his wife that he died four years later from cancer of the stomach. A pylorectomy or excision of the ulcer, if placed advantageously for such a procedure, would have, in all probability, given this patient longer life and been of economic value to society. Such is the physician's responsibility. Cases similar to this



are numerous in the literature of the subject and still more numerous in the practitioner's daily experience could he but bring them to light. The difficulty of so doing removes the necessity of early surgery in such cases from us. Individual cases in the experience of every practitioner have the greatest influence on his habits of treatment, and when these often interrupted or forgotten histories are not followed out the definite influence is lost. As to type of operation to be employed in chronic ulcers past 38 years of age there seems to be one major indication, i. e. eradication of the diseased tissue. If the ulcer is advantageously located a clamp and suture accomplish this. If in doing so a narrowing of the pylorus must occur a gastro-jejunosomy should also be done. However, the London Hospital statistics show the great frequency of multiple ulcers when chronic, there being more than one in 84% of the cases, while but one in three cases in simple ulcer showed multiple ulcers. Great care in case of excision should therefore be used to remedy all the ulcers, indeed the operation of Rodman, i. e., excision of the pyloric area in such a case is indicated. For ten years this author has striven to bring a complete excision of chronic pyloric ulcer into acceptance by the practitioner. His reasons, based upon a wide experience and clinico-pathological findings, have had great weight on the trend of thought along this line, so that today he must be considered as one of the early well founded advocates of this procedure.

"If a lesion is found and is not demonstrably benign, either pylorectomy or partial gastrectomy is demanded according to the location of the growth." This is Moynihan's view, based on the cancer occurrence on ulcer.

It has been my experience to have definite records of 43 cases of acute and chronic gastric ulcer. Of these, ten are still under observation, having had more or less regular treatment. Six acute cases had the complete Leube treatment under most favorable conditions. Of these there are two cures, one not traced and three recurrences. Six have had gastro-enterostomy. Of these two have since died from cancer, three were cured and one, by the old anterior operation, developed vicious circle. Two have had pylorectomy. Both had been through medical treatment, one by a most skillful specialist, without relief. Both have been in excellent health

since operation, one having gained 60 pounds. Fifteen cases could not be traced. There has been no operative mortality. Two patients have died from hemorrhage and tetany respectively. After complete operative recovery, the limitation of the diet for a period of from one to four months to a soft, easily digested one and the decreasing use of alkalies to aid in controlling the frequent hyperacidity is essential. For the surgeon to think that by a single operative procedure he can remove a pathologic digestive process and expect the organism to adapt itself to the new state of affairs at once, is to attempt to reason without appreciating physiologic laws. Having removed a mechanical defect, and, as has been said, it is the mechanics and not the chemics which is usually at fault, and having removed a center of irritation which has by a long standing, vicious circle resulted in abnormal secretion and derangement of the pyloric mechanism, the treatment is not complete until the patient is carried carefully through a period of readjustment of his chemics to the newly arranged mechanics of his digestive process. This can be done to the best advantage only by a harmonious cooperation of internist and surgeon, and it is frequently the case that a surgeon's failures are due to his unlimited faith in the efficacy of his art and a lack of appreciation of the ever-present need of postoperative care.

A case of striking illustration of this point has been the following: A woman of 33 years with the classic signs of ulcer—pain, hemorrhage, vomiting of six years' duration and periodic and including a Leube treatment—was sent to me for operative relief. Besides the stomach condition, she suffered from severe menorrhagia and pain, lasting two weeks at each period. The uterus was large and anteflexed, the left tube and ovary large and tender. The gastric trouble was markedly exacerbated at each menstrual period so that at these times the patient was in wretched condition. At operation upon the stomach which was deemed of first importance an ulcer was found in the pyloric ring, with a large stomach. A gastro-jejunostomy was done and a curettment. The patient returned to her home in two weeks but at each succeeding menstrual period the menorrhagia recurred and also the gastric distress. The patient reentered the hospital, a hysterectomy was done upon a tuberculous uterus and tube



with beginning peritoneal involvement. An equally rapid recovery followed but at each succeeding time for a menstrual period gastric distress returned and persisted for a week or ten days. A soft, non-irritating diet, alkalies and a sojourn in the country over a period of several months restored this patient to perfect health with a gain of 15 pounds. A point of unusual interest in this case was the marked exacerbation of gastric signs at each menstrual period both before and after the hysterectomy, indeed before operation this was a factor of some difficulty in diagnosis. Borri, I believe, has written quite extensively on this subject of the interrelation between disease of the stomach and of the female pelvic organs.

In conclusion the following are drawn from our present medical, pathological and surgical experiences.

1. By our present methods we are unable to diagnose cancer of the stomach in the operable stage.
2. Ulcer of several years' standing in a patient past 38 years of age should receive surgical treatment.
3. Ulcer of short duration, provided no pyloric obstruction exists, may be given a short medical course of not longer than four weeks duration. If symptoms recur, or are not entirely relieved, surgical treatment should be advised.
4. Pyloric obstruction is always an indication for immediate operation.
5. Complete eradication of diseased tissue either by excision of the ulcer or resection of the pylorus is the aim of surgical treatment.

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#### BIBLIOGRAPHY.

- Borri: Zentralbl. f. univ. Med., 1904, p. 689.  
 Dahl: Jour. A. M. A., May 21, 1910. Mitt. a. d. Grenz. der Med. u. Chir., XXI, No. 5, p. 729.  
 Futterer: Jour. A. M. A., March 15, 1902, p. 692.  
 Goldschwend: Arch. f. klin. Chir., Bd. 88, p. 218.  
 Leiblein: Mitt. a. d. Grenz. der. Med. u. Chir., Bd. XXI, p. 842.  
 Mayo: Trans. Am. Surg. Assn., 1900, p. 97. Jour. A. M. A., Vol. 54, p. 1609. Jour. A. M. A., Apr. 7, 1906, p. 999.  
 Monsarrat: Liverpool Medico-Chir. Jour., July, 1910.  
 Moullin: Brit. Med. Jour., Vol. II, p. 955.

- Moynihan: Trans. Am. Surg. Assn., 1908.  
 Mumford: Surgical Aspects of Digestive Disorders, 1907.  
 Munro: Boston Med. and Surg. Jour., Vol. 162, p. 843.  
 Musser: Jour. A. M. A., Vol. 50, p. 781. Am. Jour. Med. Sci., Dec., 1907.  
 Payr: Arch. f. klin. Chir., 1910, p. 199. Arch. f. klin. Chir., 1909, p. 989-1024. Deut. med. Woch., 1909, No. 36, p. 1556.  
 Rasumosky: Arch. f. klin. Chir., Bd. 38, p. 451.  
 Riegel: Nothnagel's System, p. 275. Deut. med. Woch., 1909, p. 17-54.  
 Robson: Robson and Moynihan, p. 27. Keen's Surgery, Vol. III, p. 848.  
 Rodman: Trans. Am. Surg. Assn., 1900, p. 38. Jour. A. M. A. Vol. 50, p. 165. Trans. Am. Surg. Assn., 1908, p. 189.

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## Review of the Progress in Obstetrics.

Conducted by ARTHUR H. BILL, M. D., Cleveland.

- The Retraction Ring as a Cause of Obstruction in Labor.—Jardine.  
 Glycogen in the Human Placenta—Flesch.  
 Report of a Case of Puerperal Infection, with Isolation from the Uterus of *B. Influenzae*, and a new Method for Making Blood Agar for its Cultivation—Thalheimer.  
 Multiple Cesarean Section, with the Results in Thirty-nine Cases Done at the New York Lying-in Hospital—McPherson.  
 Severe Hemorrhage from Placenta Praevia Hysterectomy without Preliminary Opening of the Uterus; Living Child; Recovery of Mother—Reymond and Cazalis.  
 Treatment of Eclampsia by Intravenous Injections of Hirudin, Based upon the Results in Fourteen Cases—Engelmann.  
 Experimental Investigations on the Source of Amniotic Fluid—Wohlge-muth and Massone.  
 Fibrinogen in the Blood during Normal Pregnancy and Puerperium and in Eclampsia—Krosing.

## THE RETRACTION RING AS A CAUSE OF OBSTRUCTION IN LABOR.

By Robert Jardine: *Journal of Obstetrics and Gynaecology of the British Empire*, July, 1911.

Jardine calls attention to the fact that in an obstructed labor, when the retraction ring can be palpated through the abdominal wall, this is a danger signal which must not be disregarded. Prompt and proper treatment must be adopted or rupture of the uterus will soon occur. If improper treatment is adopted, the rupture may be caused by it. While



usually the ring is not the primary cause of the obstruction, but rather the result, occasionally cases occur in which the ring is the cause of the obstruction. In some of these cases, the ring actually forms in front of the presenting part, while in others, it is behind the presenting part, which may be either the head or the breech. The author reports two cases in which the ring formed in front of the presenting part. In both cases there was only a moderate contraction of the pelvis, not enough to demand a Cesarean section. In both cases the os was dilated, but the contraction ring formed above the os. In one case the membranes had ruptured some hours before, while in the other they were still intact and bulging into the vagina. In one case the largest sized Barnes bag was used. In both cases the head presented. The contraction ring in neither case relaxed under full doses of morphin and Cesarean section was done in each case.

As to the cause, Jardine does not think that the pelvic contraction had anything to do with it. He suggests the possibility of the Barnes bag being a factor in one case. Ergot may be a cause, but it was not given in either of these cases. He suggests as the most probable cause, that a condition occurs similar to the spasmodic contraction of the os sometimes seen, in which its fibers contract along with the fibers in the main part of the uterus, the os actually getting smaller instead of larger. He thinks that the same causes of spasmodic contraction of the os may act upon the retraction ring in certain cases, but does not venture to say what these causes may be except some irritant. In obstructed labors, on the other hand, it is easy to explain the presence of the ring by the thinning out of the lower segment and the retraction of the contractile portion of the uterus.

If the ring does not relax under an anesthetic and cannot be dilated manually, perform Cesarean section if the child is alive. Do not incise the ring. Bags are useless. If the child is dead do craniotomy and if necessary embryotomy.

Of the cases in which the retraction ring is above the presenting part, Jardine mentions five in which the head presented and the ring formed around the neck, and has seen a number in which the ring formed above the breech in cases of breech presentation. In none of these cases was there any

obstruction in the pelvis. The cause of the ring is explained as follows: The membranes rupture early and the liquor amnii drains off before the uterine contractions have come on. The uterus is thus molded round the child before the cervix begins to dilate. As contractions go on, retraction also occurs, and if dilation of the cervix is not quickly effected, the retraction of the uterus causes the ring to form, and it grips the part of the child above it. If the head presents, the ring is around the neck; if the breech presents, the ring is above it, and the child is gripped so that its feet lie above the ring.

The indications for treatment are as follows: In head presentation, try forceps, and if they fail, and the child is alive, Cesarean section is the best method. If the child is dead, do craniotomy and if the shoulders will not come through, cut the clavicles. If the diagnosis is made before forceps are applied, do Cesarean section right away. Never do version.

In the case of breech presentation, with feet extended, never make traction upon the breech with a blunt hook, and forceps, fingers or fillets are of little use; anesthetize deeply and bring down a foot, being careful not to rupture the thinned out lower uterine segment.

Jardine feels that the subject of the retraction ring as a cause of obstruction in labour, is one which deserves greater attention than has been given to it.

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#### GLYCOGEN IN THE HUMAN PLACENTA.

By Karl Flesch: *Monatsschrift für Geburtshilfe und Gynaecologie*, July, 1911.

Flesch's investigations as to the presence and location of glycogen were based upon the study of nine mature placentae; one placenta at seven months, eight placentae at from six weeks to five months, one ruptured tubal pregnancy, and five curettements. In the mature placenta glycogen is found chiefly in the maternal parts, the decidua containing it as a constant finding. The fetal part of the placenta contains much less, a large proportion of the chorionic villi being free from it, and where found, it is chiefly in the connective tissue. In



the syncytium, glycogen is often seen, but in very small quantities. Likewise a small amount is found in the amnion and chorion. In all premature placentae, there is an abundance of glycogen. The young ovum is, at a certain stage in its development, surrounded by a sheath of tissue very rich in it. In the young placenta its distribution between the fetal and maternal portions is practically equal, if anything, there being slightly more in the fetal part. The Langhans' cells and the connective tissue of the villi are especially well supplied; but with the disappearance of the Langhans' cells, there is a diminution in the amount of glycogen in the fetal part. In the mature placenta, it predominates in the maternal portion. A study of the uterine glands and epithelium shows the presence of glycogen, in both the normal epithelium and the glands. The normal stroma cells are free from it. In glandular hyperplasia and endometritis there is more glycogen than in the normal.

The glands of the pregnant uterus contain a large amount and there is no special difference between the amount in the compact and spongy layers. Flesch does not agree that the abundance of glycogen is necessarily a sign of increased cell activity, as for example, under the stimulus of pregnancy, since he found it in the non-proliferated as well as in the proliferated cells. Glycogen-content is not a characteristic of a special kind of cell or of a special pathological process, but represents a definite phase in metabolism when there is, for some reason, an especial storing up of carbohydrates. At any rate, glycogen is never a product of degeneration. Further than this, Flesch will not venture in explaining the meaning of its abundance in some cells, and small amount in others, saying that in the investigation of glycogen, merely a small part of the subject of carbohydrate metabolism is taken up.

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REPORT OF A CASE OF PUERPERAL INFECTION, WITH ISOLATION FROM THE UTERUS OF *B. INFLUENZA*, AND  
A NEW METHOD FOR MAKING BLOOD AGAR  
FOR ITS CULTIVATION.

By William Thalheimer: *Bulletin of the Johns Hopkins Hospital*, August, 1911.

There is only one other case on record in which the bacillus of influenza was recovered from the female genital tract,

that reported by Kiskault of a mulipara, 40 years old, in whom pus from a pysalpinx showed a typical growth of this bacillus. The patient had an attack of influenza eight or nine years before. In the present case the patient had an attack of influenza 15 years ago, when 16 years old. This lasted two weeks. There had been no attack of a similar kind since.

Two years ago the patient was delivered of a child, the pregnancy, labor and puerperium being normal. The present pregnancy and labor were normal. Three days after labor there were chills, fever and pain in the lower part of the abdomen. At the time when the culture was taken from the uterus the temperature was 105.4°, pulse 140 and respiration 30, Leukocytes were 12,400. The cultures showed a growth of the influenza bacillus, and also a streptococcus, the former predominating. Blood culture was negative; febrile course for 26 days; recovery.

Thalheimer attaches no importance to the previous history of influenza except to note the similarity in the history of the other cases reported. The other possibilities of the source of infection are an accidental infection at the time of labor or else an infection of some portion of the genital tract previous to labor. The writer also describes a new method of making blood agar for the cultivation of *Bacillus influenzae*.

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#### MULTIPLE CESAREAN SECTION, WITH THE RESULTS IN THIRTY-NINE CASES DONE AT THE NEW YORK LYING-IN HOSPITAL.

By Ross McPherson: *Bulletin of the Lying-in Hospital of the City of New York*, March, 1911.

Upon the results obtained from repeated Cesarean sections in the same patient, are based the permissibility of subsequent pregnancies in a patient who has been delivered by this method, as well as the advisability of sterilizing a patient at the time of operation. The consensus of opinion seems to be that for sociological, ethical and religious reasons, the latter should not be done unless there is some other complication than a mere obstruction to labor, such as a contracted pelvis.



The chief objection raised against a second Cesarean section, is the danger of rupture of the uterine scar, which danger is apparently slight, as judged from clinical reports, and the writer believes that after a Cesarean section properly performed, the uterine scar is fully as strong as the rest of the uterine wall, a fact which has been proved experimentally by Mason and Williams. Abdomino-uterine adhesions may be prevented by the high incision, thus obviating a second point raised in objection to subsequent Cesarean sections. McPherson reports 39 cases in which more than one Cesarean was performed on the same patient. Of these, 30 were done for the second time, seven for the third time, and one each for the fourth and fifth times.

In 18 cases no adhesions were present, in 11 very few, in several there were many, and in one case the uterus was adherent to the abdominal wall. The uterine scar of former operations was not seen in nine cases, was normal, i. e. not thinner than the rest of the uterus, in 25 cases: was very thin in four cases, and was ruptured in one case in which many adhesions were noted. There were three deaths; one from anesthesia occurring before the uterus was opened, one from sepsis on the third day, and one from pneumonia on the fifth day. None of these causes of death could be attributed to the secondary operation. The repeated operation apparently offers very little greater danger than the primary operation.

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SEVERE HEMORRHAGE FROM PLACENTA PRAEVIA; HYS-  
TERECTOMY WITHOUT PRELIMINARY OPENING OF  
UTERUS; LIVING CHILD; RECOVERY OF MOTHER.

By Reymond and Cazalis: *Annales de Gynecologie et D'Obstetrique*, May, 1911.

Reymond reports a case of placenta praevia in which, on account of repeated hemorrhage, the patient was in a condition of extreme shock. The placenta was adherent; attempts at separating it failed, and the hemorrhage continued. He performed a total hysterectomy, opening the uterus after its removal.

A living child weighing 3130 grams was removed. The patient made a good recovery. The point which Reymond

makes is that in such an extreme case with continuing hemorrhage, the hysterectomy is the conservative procedure, as preventing further bleeding.

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THE TREATMENT OF ECLAMPSIA BY INTRAVENOUS INJECTIONS OF HIRUDIN, BASED UPON THE RESULTS IN FOURTEEN CASES.

By F. Englemann: *Zeitschrift für Geburtshülfe und Gynaekologie*, Bd. 68, Heft 3.

Engelmann has now treated 14 cases of eclampsia of the severest type, with intravenous injection of hirudin, a leech extract, with rather striking results. Its use is based upon an experimental study of its action in animals. It has been shown that intraperitoneal injections of the amniotic fluid from cases of eclampsia, produced lesions in guinea pigs, similar to findings in eclampsia cases. Later, it was found that intravenous injections of a small amount of the same fluid in rabbits, produced even a more marked effect. The animals succumbed quickly and the postmortem findings corresponded almost exactly to the other. Furthermore, simultaneous injections of hirudin checked the death of the animals. The latter animals, when killed, showed no pathological changes. Therefore, the conclusion was drawn, that in eclamptic amniotic fluid, there is a toxic substance not present in normal fluid, as shown by control experiments, which may be counteracted by hirudin.

Loeb, Tuttle and Strickler showed that the fatal effect of intravenous serum injections, e. g. injections of dog's serum into rabbits which causes hemolytic changes, could be checked by previous treatment with hirudin. By analogy, this could be made to apply to eclampsia, if one adopted the theory of Lockemann and others, that a material contained in the fetal blood passes over to the maternal blood and causes the same effect. Again, Engelmann found that, whereas extract of placenta injected intravenously into animals, produced changes leading to coagulation, this could be avoided by first injecting hirudin. He thinks that in eclampsia there is a poison which causes coagulation, which is responsible for much of the clinical picture; the convulsions may be explained by thrombus



formation, and we need, therefore, not seek a special poison as a cause of the convulsions.

Just how hirudin acts, is not clear, but seems to possess further favor than that of merely hindering coagulation of blood. Deetjin showed that it prevented the destruction of blood plates. In the clinical cases, hirudin was given intravenously, in doses of 0.2 to 0.3 gm. in water, either with a syringe or in the form of an infusion. The cases selected were the worst ones in the clinic, in ten of which the convulsions persisted after delivery, or first appeared postpartum, cases which did not respond to the usual methods of treatment. There was a marked influence upon the convulsions in all but two cases. In seven cases, the convulsions either stopped immediately, or after one to four recurrences. In one case, there had been about 50 convulsions, and in another 26, with none after the injection. Seven cases proved fatal, but even in these, there was a marked beneficial effect upon the convulsions, wherein apparently lies the chief claim for hirudin.

The writer does not as yet advise the routine use of this preparation, but hopes that it will be tried in large clinics in the worst cases which do not respond to other methods. Although he states that it must be used with care when the heart action is poor, he has never noticed an increase or disturbance in pulse or respiration. The blood pressure is lowered but not to a point below normal.

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#### EXPERIMENTAL INVESTIGATIONS ON THE SOURCE OF THE AMNIOTIC FLUID.

By Julius Wohlgemuth and Marcello Massone: *Archiv für Gynäkologie*, Bd. 94, Heft 2.

To add to the information already at hand concerning the source of the amniotic fluid, the writers have performed a series of experiments upon animals (dogs) which are interesting and may be valuable. They are based upon the fact that after tying off the pancreatic duct, there is an increase in the amount of diastase in the blood. In these experiments pregnant animals were used and first the amount of diastase in the maternal blood, the fetal blood, and the amniotic fluid was

determined. Then the pancreatic duct was tied off and after 24 hours the same tests were made. In this latter series there was a marked increase in diastase in all three fluids, but inasmuch as the amniotic fluid never contained more than the fetal blood, the possibility of the diastase reaching it through the fetus, could not be ruled out. In the other experiments, therefore, one horn of the uterus was tied off and removed intact before the pancreatic duct was tied, and then the fetuses in the other horn were killed so as to rule out the fetal circulation. The fetal blood and amniotic fluid in each horn were then examined as before, the second after 24 hours, and the same increase in the diastase in the amniotic fluid obtained as before. Therefore, the conclusion was drawn that the diastase passed directly from the maternal blood to the amniotic fluid, furnishing further evidence of at least one source of the latter, and of the possibility of substances passing directly to it from the mother.

(This is interesting in view of experiments which have shown the toxicity of the amniotic fluid in cases of eclampsia.)

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#### FIBRINOGEN IN THE BLOOD DURING NORMAL PREGNANCY AND PUERPERIUM AND IN ECLAMPSIA.

By Elisabet Krosing: *Archiv für Gynaekologie*, Bd. 94, Heft 2.

Determination of the amount of fibrinogen in the blood was made in 99 cases, covering the following conditions: normal individuals; normal pregnancy; normal puerperium; menstruation; eclampsia; nephritis; various tumors; inflammations and fevers of various kinds. These experiments were made by precipitating the fibrinogen from 10 c.c. of plasma with concentrated salt solution and determining by the Kjeldahl method, the amount of N in the precipitate. The results showed that 10 c.c. of normal plasma contained about 3.0 to 4.5 mg. of fibrinogen; that inflammation of all sorts especially fevers, may increase the amount to nearly 20.0 mg., an exception to this being typhoid fever. Tumors also cause an increase of fibrinogen. There is an increase after a sudden hemorrhage. A very distinct increase was noted in normal pregnancy, labor and puerperium, which was still greater in



eclampsia, both antepartum and postpartum. As far as being an aid to a threatened eclampsia, these experiments are not of much help, since several cases of nephritis, without subsequent eclampsia, showed an increase in fibrinogen.

The clinical and pathological picture of eclampsia is characterized by unusual thrombus formation, and it is a well known clinical fact that eclamptic blood coagulates more quickly than that of normal women. The increase in fibrinogen alone would not explain this, and one thinks of the probability of an increase in fibrin-ferment also, a view already held.

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### A Trust Which Deserves Encouragement.

In a recent speech in the United States Senate, Hon. Robert L. Owen of Oklahoma, in an argument for a national Department of Health, said, after reading the recent editorials of *Collier's Weekly* into the record: "Mr. President, the American Medical Association has published at great length scientific and careful analyses of most of the nostrums and patent medicine frauds of this country. They have given wide publicity to it and in that way they have excited violent animosity and hostility of the patent medicine people so that the declaration is made by them that the medical profession comprises a trust. In point of fact, if the American Medical Association forms a trust and if they are concerned in establishing a Department of Health with a view to preventing sickness, which would be the purpose of the Department of Health, they would be engaged in tearing down their own business; they would be engaged in depriving themselves of their patients from whom they make their living. It would be the only trust in existence which is concerned in diminishing its own revenues and destroying its own financial foundation. Such a trust as that is a very noble trust and one that deserves encouragement." It might also be of interest to our readers to know that when Senator Owen asked permission to insert the *Collier* editorials in the record, Senator Gallinger of New Hampshire was the only member of the Senate who objected. Senator Gallinger is also the only member of the United States Senate who claims a medical degree. *Jour. A. M. A.*, Aug. 12, 1911.

# The Cleveland Medical Journal

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## EDITORIAL

### Wild Animals and Tame Medical Practice.

Some mystic charm associated with the names of beasts that roam the wilds and of fowls that cleave the air must be back of the nomenclature of many fraternal organizations. Mystery and secrecy are prominent and proper elements of such organizations and one not initiated into all the mysteries cannot hope to penetrate that one which causes the selection of a given zoological title. Even after the selection has been made one may be permitted some wonder as to the exact species considered. Is the Elk, which gives a name and a symbol to one lodge, *Alces malchis*, the true or European elk or *Elaphus canadensis*, the American elk or wapiti? Possibly the success of this particular



order has been a factor in determining the nomenclature of the several other organizations which have been making such bids for popularity during recent years. Some of the latter, in order to attain success, which seems to be measured by the length of the membership roll, offer among their inducements certain ones which come within the sphere of the thinking medical man. Two of this latter group, one of which derives its title from *Strix*, the owl, and the other from *Alces americana*, the moose, have recently been conducting an active advertising campaign in Cleveland for new members. In their newspaper advertisements and in their circulars sent out broadcast the two inducements which stand out most prominently—so prominently as to lead one to believe that they are relied upon to play a large part in the attraction of new members—are a hundred dollar funeral and free medical attention for the member and his entire family. To neither of these benefits can there be any very great objection if the conditions which make them possible are proper. A hundred dollar funeral ought to be as comfortable to the dead member of a fraternal organization with a zoological name as to anyone else. And to a properly deceased person a hundred dollar funeral ought to be as satisfying as a thousand dollar one. A member, dead, can have little active interest in the exact cost of his post mortem parade; but, living, he ought to have the assurance that the last ride will actually cost one hundred dollars, since that is what he is paying for. Free medical attention, too, ought to be proper if the prospective patient were paying a price sufficient to assure a satisfactory article. A total monthly assessment of fifty cents would seem hardly large enough, however, to buy, in addition to the other things for which it must pay, a very high quality of medical treatment. The humorist has long placed the undertaker and the physician in close juxtaposition. The lodge undertaker would seem to have the advantage over the lodge doctor. The former can furnish a hundred dollar funeral a single time for a single individual with more profit to himself and with the retention of a greater degree of his self-respect than is the case with the physician who must give medical attention not only to the individual but to his entire family as well. What actually occurs is the exploitation of the physician by organizations into whose foundation there enters the element of cheapness rather than of true charity. The mem-

bers of such lodges would deny with the utmost indignation that they are on a par with the patient who frankly accepts the real charity of the free dispensary by paying ten cents for a prescription or a surgical dressing. How the doctor can afford to take such a lodge practice and how much of the esteem of his colleagues he can retain perhaps the Committee on Medical Practice of the Academy of Medicine may be able to tell us in its forthcoming report. How the intelligent layman can be satisfied with the quality of medical attention, for himself and all his family, that he receives for the small fraction of fifty cents a month which can go to the doctor is a question that he alone can answer.

O. T. S.

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### **The Anti-Tuberculosis Day-Camp.**

Among the various steps taken to control the spread of tuberculosis in this city, the establishment of a day-camp for such tuberculosis patients as are able to be up and about, but who are in need of more abundant fresh air and better and more nourishing food than their home surroundings and means will allow, fills a want that has been long apparent. In 1910 a Committee from the Cleveland Council of Women collected funds for such an object and conducted a day-camp which, while on a small scale, demonstrated its usefulness. The success attending this venture led to more ambitious plans for the present year and with the help and cooperation of the Anti-Tuberculosis League and the City a much larger and more efficient day camp has been maintained. Through the generosity of Mr. Rhodes an ideal location upon the lake shore on the West Side, and readily accessible by the street cars, was rendered available. The equipment, consisting of dining, cooking and shelter tents, etc., provides accommodation for 30 patients. The patients are referred by the tuberculosis dispensaries and are frequently visited by the physician. A trained nurse is in constant attendance and the necessary help for cooking and serving the meals is also supplied. Not only have the great majority of the patients treated been markedly benefited but advantage has been taken of the opportunity to educate them in personal hygiene and in the conduct of their lives at home, so as to prevent the spread of contagion. This educational feature of the camp is regarded by



those in charge as of the utmost value. In the future it is hoped that the scope of the camp will be enlarged—that patients may remain there both day and night, but the funds available this year did not permit the expenditure for the larger equipment necessary, and accordingly a day-camp only was possible. The accommodation this year has proved inadequate to the demands and next year it is hoped that the work may be carried out on a much larger scale.

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### Routine Physical Examinations.

The custom of having the teeth examined by a dentist at periodic intervals, even if no evidence of dental decay is apparent to the patient, seems to be rapidly growing and a similar plan to include a complete physical examination at the hands of a physician, would be of the greatest value in detecting, in their incipency, certain pathological processes at a stage when possibly the observance of simple measures would serve to arrest the trouble. As an example might be cited cancer of the uterus, the early stages of which are usually marked by certain symptoms apparently of little importance to the woman herself and yet are of great significance to the trained physician. Many other conditions such as an abnormally high blood pressure, hardened vessels, albuminuria, etc., might be detected in time to avert a serious later catastrophe. To the patient himself the value of such periodic examinations are evident. To those, relatives and dependents, interested in the maintenance of his health and usefulness, it would be of scarcely less value. In a still wider circle would come organizations of a business nature which rely upon him in various ways: among these might be included life insurance companies which have a direct financial interest in the longevity of their policy holders. Abroad, this fact has long been realized by the insurance companies, some of which have, we understand, actually established sanatoria and have lent their influence to aid prophylactic medical measures. In this country a greater sense of their obligation to the public has recently been manifested by the insurance companies in various ways. One of the most recent is an appeal by the Equitable Life Insurance Company to its medical examiners to further, to the best of their ability, all health measures of a public nature and to urge upon

all policy holders the advisability of periodic medical examination at the hands of their family physician. This is sound business from the standpoint of the company, for the longer the life of the insured the greater profits to the company, and its value to the insured is self evident.

### Department of Therapeutics.

Conducted by J. B. McGEE, M. D.

**The Hypophysis:** In the *Archives of Internal Medicine* for June, Dean Lewis, Joseph L. Miller and S. A. Matthews present the results of investigations on the effects on blood pressure of intravenous injections of extracts of the various anatomical components of the hypophysis. The ox hypophysis was used in making the extracts, because the pars intermedia is sharply demarcated from the pars nervosa, and can be cut away from the latter without taking nervous tissue with it. They concluded as follows: (1) Extracts of the pars intermedia when injected intravenously cause a decided rise in blood pressure. The extract does not need to come in contact with the pars nervosa to become active. (2) Extracts of the pars nervosa also give a pressor effect. The primary rise is followed by a fall, which is succeeded by a rise associated with a marked slowing of the pulse. Extracts of the anterior lobe give a primary fall, which is followed in the majority of instances by a secondary rise in pressure above the level existing at the beginning of the experiment. These results confirm Hamburger's findings. The pressor substance is confined to that part of the anterior lobe bounding the cleft which contains groups of cells belonging to the pars intermedia. (3) The contents of a cyst of the pars intermedia gave a decided pressor effect. (4) A depressor substance, soluble in alcohol, is found in the anterior lobe of the pars intermedia, and the pars nervosa. (5) It is not probable that two structures, differing so much histologically as the pars intermedia and the pars nervosa, would secrete a substance having the same effect on blood pressure. They believe that the pressor substance is secreted by the pars intermedia, and that it then passes into the pars nervosa. Whether it passes by way of the blood or the hyaline bodies they cannot say. The latter, however, do not form a striking feature in the histology of the ox hypophysis. (6) They have never been able to obtain any pressor effect from extracts of the hypophyseal stalk. If the hyaline bodies pass through this and represent the pressor substance they believe that they should be able to elicit a pressor reaction with extracts of the stalk. In the ox at least there is a distinct break in the paths of secretion between the pars nervosa and the ventricular cavity.

**Summer Diarrheas:** LeGrand Kerr in the *Medical Record* for June 10, states that the time to commence treatment of the summer diarrheas of infants is in the late spring, or at latest the early summer. Gastro-enteric disease, as it is expressed in infants and young children, is not always an acute process. In fact, although it appears as an acute condition, it is uncommonly such and careful history taking will almost invariably reveal the fact that the acute process is one that has developed upon a soil which has been long prepared for it. Thus the prevention of digestive disturbances is the largest factor in the limitation and prevention of acute gastro-enteric disease. In the treatment of the summer gastro-enteric disturbances, the prophylaxis demands that the



digestion be normal or nearly so, and in calculating this factor we cannot put too much reliance upon the single factor of weight. Serious summer gastro-enteric disease is not often sudden in its onset, but may be often predicted because of the general condition of the infant, a condition which favors its development from a slightly active cause. On the other hand, the general condition may indicate that summer gastro-enteric disease will be successfully resisted. Therefore as far as summer gastro-enteric disease is concerned prophylaxis must take recognition of the most trivial symptoms which precede it and which are in any way attributable to the digestive tract. Not alone in July and August, but in May, June and September any digestive disturbance in an infant, and particularly in those under nine months of age, should be regarded as the possible beginning of a fatal disease. When the disease is once fully established, there are several things to be done. (1) The expulsion of the offending material from the stomach or bowel. (2) The dilution of the toxins. (3) The introduction of a food that is completely suited to the immediate needs, and the securing of its absolute cleanliness and freshness. (4) The establishment of adequate hygiene of the mouth. (5) The maintenance of a clean skin, particularly that of the napkin area. (6) The protection of the food by clean utensils and careful attendants. (7) The protection of the infant by clean, fresh air and the best possible surroundings. (8) The isolation of the patient sufficiently to protect the children. He again, however, emphasizes the fact that the time to treat the disease in infants is before it has had an opportunity to become established.

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**Sodium Citrate:** The *New York Medical Journal* for June 17 states that the almost specific effect of sodium citrate in the vomiting of nurslings and of bottle fed babies is the subject of an article in *L'Union Medical du Canada* which cites Variot (*La Clinique Infantile*) who has established after seven years experimentation, the absolute harmlessness of this salt, and its action, previously unsuspected, of regularizing the peristaltic contractions of the intestines, as well as its property of attenuating the curd of cow's milk. A neutral combination results from mixing 23 grains of sodium citrate with 35 grains of sodium bicarbonate, and from 15 to 30 grains may be given daily to a nursling. Vomiting is due not only to superalimentation, but to insufficiency of food, which also produces contraction of the infantile stomach: in cases of both kinds, citrate of sodium acts with delightful certainty. To four ounces of water, two-thirds of an ounce of simple syrup may be added and 25 grains of the sodium salt dissolved therein: of this mixture six or seven tablespoonfuls may be given in 24 hours. It will be found to control vomiting even in those cases in which the mother's milk acts as an irritant.

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**Tetanus:** Carl F. Holman in *Merck's Archives* (*St. Paul Medical Journal*) for June treats of tetanus with special reference to the use of magnesium sulphate. The clinical phenomena in tetanus are due to the toxins attacking the spinal cord, and not the peripheral nerves. The toxins produce a condition of excitability or hyperexcitability in the motor ganglia, accounting for the tonic contractions, and the clonic contractions are the result of reflex hyperexcitability. Treatment when developed: the subdural injection of morphin, eucaïn and salt solution. This was used by Murphy in 1896—one case with good results. He employed 1/75 grain of morphin and 1/50 grain of eucaïn in salt solution, first drawing of cerebrospinal fluid. Immediately after the first injection, the patient slept for a few hours. Four such injections were used when the patient's condition continued to improve so that its use was discontinued. It would seem as though the use of this solution inhibited

the excitability of the motor cells so that the patient was allowed to manufacture the antitoxin to combat the poison—in effect practically the same as with magnesium sulphate. In those cases in which magnesium sulphate does not control the spasms it seems to him that this course should be considered. Miller says that it may be affirmed that by the use of magnesium sulphate it is possible to achieve complete muscular relaxation in almost all cases of tetanus. From the report of results it seems to be a distinct benefit to the patient in his condition, inasmuch as it prevents the rapid exhaustion due to convulsions and in most instances has made it possible for the patient to take nourishment. Blake says: "My impression of the drug is that although we cannot be certain of the effect, yet it is reasonably safe and offers us a means of modifying the convulsions and relieving pain in a way no other drug has approached." For these reasons alone it is worthy of a more extensive trial. It is not a specific treatment but it produces anesthesia, which may be taken advantage of for intraneural or other injections of tetanus antitoxin, and for revising the site of the injection. With a needle three inches long, no difficulty was experienced in entering the canal, and no anesthetic was used. If tetanus develops, magnesium sulphate will probably control the convulsions, providing for the nourishment of the patient while antitoxins are being formed to overcome the toxins. If death should take place it would be more pleasant under a lethal dose of magnesium sulphate than from the poison of tetanus.

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**Backache:** In the June number of *Therapeutic Medicine*, Albert De Roulet states that while backache in women between the ages of 20 and 50 are so common as to be almost universal, the literature on the subject is both meagre and unsatisfactory. In women backache occurs from many causes, and many backaches in women are rheumatic in origin, but more are neurasthenic. In young women improper or unsuitable footwear is a prolific cause of backache. Again, the unstable equilibrium afforded by the high heels keeps up a muscular and nervous strain very conducive to backache. Among women of the poorly nourished hard working types an intrinsic weakness of the muscles of the back is a common cause of suffering, the distress being greatly increased by long continued or fatiguing effort. While backache is very common in all forms of pelvic disease, he is inclined to attribute this symptom to an impairment of the patient's general condition rather than to pelvic disorder. As a matter of course, the treatment of backache depends entirely upon the correction of the underlying cause. If due to neurasthenia, the treatment is essentially hygienic and recovery can result only from proper food and rest, with such medication as may be necessary to stimulate digestion and control disagreeable symptoms. Iron, strychnin, arsenic and phosphorous are all useful. In rheumatic and gouty conditions hygienic measures are of great importance, but diet should be restricted and the patient should be encouraged to drink large quantities of water and for this purpose the various "lithia waters" are often highly recommended. The amount of lithia contained in any of these waters is so small as to render the possibility of any therapeutic effect an absurdity, but the amount of water taken floods the kidneys and provides the body with necessary fluid. Massage when properly employed is of the greatest value and in many patients the local application of heat is beneficial. As regards the medicinal treatment, he has found a combination of potassium iodid and wine of colchicum root in syrup of sarsaparilla compound of considerable value in promoting recovery. In backache due to relaxation of the sacro-iliac articulations, treatment by rest and support is by all means the most efficacious. A ready method of securing this rest and support is by strapping the pelvis across the sacrum and just above the great trochanters.



**Pneumonia:** In the *Medical Review of Reviews* for March, C. Hirsch (*Deuts. med. Wochenschr.*) believes that the first requirement in treating pneumonia is to know the character of the disease. Three kinds of treatment may be considered: the treatment of the cause that of the disease itself and that of the symptoms. Unfortunately in pneumonia there is no treatment available which attacks the cause. In most cases pneumonia is self-limited, and as fever is a natural reaction, the use of antipyretics is not indicated, except when there is excessively high temperature. He especially warns against the use of antipyretics which produce copious perspiration as these may be followed by collapse if used in large doses. Venesection should be employed only in cases of serious heart weakness with marked overloading of the right ventricle. In children hot mustard packs are of value except in cases in which they no longer produce any redness of the skin, when they are valueless. As regards drugs, the one which he uses most frequently is quinin in small doses of about three grains three to five times daily. The most important function of drugs in pneumonia is the support of the circulation. In patients with affections of the heart or arteries in fat patients and in drinkers, he gives digitalis from the beginning of the disease because it is better to secure the action of digitalis early than to use it too late. If a rapid action is needed he advises an injection of digalen (three to ten c.c. daily) especially watching for slow pulse or vomiting. Intravenous injections of strophanthin may be used, but should never be repeated within 24 hours. The point to be remembered is that we should not hesitate to use effective doses of heart stimulants (excluding poisonous effects) and should not waste our time with too small doses or worthless substitutes. When collapse is threatened camphor and caffen should be used in considerable doses. Adrenalin is not recommended except in acute collapse, when it may be given intramuscularly from one to five times daily, according to indications. Expectorants as a rule are needless although ammonium chlorid may be useful and also the alkaline mineral waters.

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**Typhoid Fever:** James G. Collison in the *Medical Record* for June 24 concludes as to the vaccine treatment for typhoid fever: (1) The production of antibodies or protective substances in response to the inoculation of a vaccine follows definite fixed laws, regardless of whether the vaccine is given for prophylactic or curative purposes, and the results of treatment must be interpreted in the light of what is known of these laws. (2) Inoculations of vaccine in typhoid fever prevent relapses and lessen complications, and in some cases probably shorten the original attack. (3) Stock vaccines should be given in preference to autogenous vaccines in typhoid fever. The older the culture the better. (4) When given in therapeutic doses such stock vaccines are without injurious effect and do not interfere with other treatment. (5) The routine treatment should be continued until the fever process is controlled by the vaccines. (6) The dosage used by many of those who have treated typhoid with vaccines in the past, has been too small to secure the best possible results. (7) Every case of typhoid fever should receive vaccine treatment as soon as a diagnosis is made, and this should be continued until the temperature becomes normal or until it is demonstrated that the case will not respond to this form of therapy.

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**Digestion in Fever:** John B. Nichols in the *American Journal of the Medical Sciences* states concerning digestion in fever that from time immemorial it has been quite universally believed that during fever the digestive powers of the system are very greatly impaired if not altogether abolished. The belief has had a profound

influence in medical practice, being one of the influential considerations leading to the low dietary regimen that has at all times almost universally prevailed in the treatment of acute diseases. Clinical and general experience may be appealed to in support of the view of abolished digestion in fever. The usual occurrence of anorexia in fever is commonly regarded as a reason for withholding food. It should be noted, however, that loss of appetite does not necessarily imply loss of digestive power. The dry mouth and tongue in many febrile cases have naturally suggested a diminution or suppression of salivary secretion and digestion in fever. Investigations by modern methods have shown that in the various fevers there is usually a diminution or total suppression of hydrochloric acid in the gastric juice, while the pepsin is but little reduced. Gastric absorption has been found materially retarded in fevers, while Von Noorden found the motor functions of the stomach little impaired. Inasmuch as the bulk of digestion is carried on by the pancreatic and intestinal secretions, concerning which we have no specific data, it is apparent that the observations at hand indicating some lowering of gastric secretion are not sufficient basis for any reliable judgment as to the total impairment of digestion in fever. In general, so far as shown by the data available, the average reduction of digestion during fever ranges not over 5 to 10%. This falling off is, for practical purposes, so small as to be almost negligible indeed the digestion of animal and mixed food in fever is quite as good as that of vegetable food in health. The belief in a great impairment of digestion in fever is an idea based on vague impressions and dogmatic assumptions that have come down to us from the dark ages of medicine. The reduction actually shown by exact observations is so small as to dispel any fear in general of fever patients being unable to digest and absorb an adequate amount of the nutriment offered them, or to necessitate on that account any diminution of the diet.

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**Scarlet Red:** The *Medical World* for July calls attention to scarlet red, a dye stuff discovered in 1906 which has remarkable powers as a stimulant to the growth of epithelial tissue. It does not seem to have any effect on the other tissues. The great advantages connected with its employment are that subsequent to healing one has to deal with epithelial tissue only and not with fibrous scar tissue, which may become keloid in nature. Hence, it is of great service in extensive burns and in other cases in which the size of the lesion indicates that skin grafting will probably be necessary if an unexpected growth of epithelium does not occur, indeed it is an adjuvant of great value when used in connection with skin grafting. In other cases where lesions are smaller, it promises to do away with the necessity of skin grafting operations. The simplicity of the method of application and the total absence of intricate technic must appeal to every physician in general practice. The material is prepared in ointment form by simply blending it with vaselin, lanolin or lard in the strength of 2 to 10%. It is irritating and cannot be applied for more than 24 hours at a time but it may be applied on alternate days. Only one precaution is necessary in its use—the wound must be absolutely clean and free from pus. The ointment is spread over the denuded and cleansed area. The economy, the shortening of the period of treatment, and the fact that this agent produces results not obtainable by any other dressing must make a strong appeal to physicians in general. With due regard to its known irritating properties, this agent will prove a valuable addition to our armamentarium.



### Book Reviews.

**Spirochaetes.** By W. Cecil Bosanquet, M. D., Fellow of the Royal College of Physicians, London. Octavo of 152 pages, illustrated. Artistically bound, \$2.50 net. W. B. Saunders Co., Philadelphia and London. 1911.

"Having had occasion to study the literature bearing on the subject of Spirochaetes in connection with observations which I made on two species of this genus, I was struck with the voluminous and at the same time scattered mass of papers to which reference had to be made. I therefore thought it might be useful to others if, instead of merely laying aside the abstracts which I had made, I put them together in the form of a small book." This, the first paragraph of the preface, is Bosanquet's reason for the publication of his book. The others, to whom the little volume may be useful, will fall into two groups: physicians who wish information upon a subject of increasing importance in medicine; and workers whose researches lie in the field covered. The physician will find the book a résumé, complete enough and accurate enough to give him such knowledge as he should have of a group of organisms which contains a number of important pathogens. The worker will find in the systematic description of species and in the bibliography, which together constitute the second half of the volume, a catalog which ought to be time saving and of considerable help. The author's interpretations of the work of those who have dealt with the general biology of the spirochaetae is such, however, that the researcher will probably prefer to go to the original sources for his information.

The most interesting question relating to the spirochetæ is that of their biological position, of their possible relationships to and within the plant and animal kingdoms. The determination of this question of the plant or animal nature of the organisms must take into consideration practically their entire biology—morphology, structure, nuclear apparatus, physiology, modes of division, etc. The author's valuation of certain of these factors is not just what might be wished. Not so much because his own conclusion, that the spirochaetae are "much more closely allied to the former" (bacteria) "than to the latter" (protozoa), may be contrary to one's own judgment in the matter, but rather because the conclusion appears to be based upon an improper weighing of all the facts and to be due to a logic which is not quite of the best. The "vigorous lashing movements" (p. 12) of the spirochaetae are different from the "certain degree of the latter motion (which) may, however, at times be observed in" the spirilla. One cannot agree that the difference in the motility of the spirochaetae and the spirilla "is rather quantitative than one of kind" (p. 13). *Per contra*, the chief difference is a qualitative one. Such movements as are described in more detail upon page 19 are an indication, not of the mere spacial translocation which the spirilla may also show, but of a higher degree of protoplasmic differentiation than we are willing to credit to the latter.

Longitudinal division is also measured by a false standard. The footnote upon page 14 would insinuate that those who place the spirochaetae under the protozoa believe that all the latter divide longitudinally and all the bacteria transversely. The ciliates divide transversely, as do the bacteria. The rhizpod and sporozoan protozoa divide in any axis. The patience necessary to prepare a thesis for a German doctorate would undoubtedly show that transverse division occurs in a greater number of species of protozoa than does longitudinal fission. The latter, occurring in the spirochaetae, is in favor of the protozoan nature of the organisms, not because all animals divide longitudinally and all plants transversely, but because longitudinal division is more characteristic of those animals—the flagellates—to which the spirochaetae are most closely related than it is of those plants—the spirilla—with which the nearest relation exists.

Generalization in regard to conjugation also leads the author astray. To say that "the occurrence of conjugation" is "a distinctive protozoan characteristic" (p. 14) is not so much poor logic as misstatement of fact or lack of knowledge. Unicellular plants higher than the bacteria conjugate and a primitive fertilization process has been shown by Schaudinn to occur in a species of bacterium (*B. butschlii*). If conjugation is characteristic of anything it is characteristic of life—no matter whether plant or animal. This factor, as the author uses it, has no weight whatever in deciding the question. If it were proved that neither the spirochaetae nor the spirilla conjugate, we would be no nearer a decision than we are at present—such proof might indicate only similar relative positions in the plant and animal kingdoms rather than absolute identity.

Perhaps "the action of immune serum in producing agglomeration or agglutination of spirochaetae is like that exerted upon bacterial organisms" (p. 15), but it is also like that exerted upon trypanosomes. The 12 lines (pp. 15 and 16) which include the above quotation contain more misstatements than truths.

This review is no brief for the protozoan nature of the spirochaetae. Whether the organisms are plants or animals is an academic question, whose solution or non-solution will have little effect upon the gaiety of nations. The safest plan is to agree "that there are no definite criteria by which to draw a line of division between the lowest forms of animals and plants" (p. 16). All we ask is that such criteria as are set up be set up with due regard to the laws of sound logic.

It is the presence of a spiral organism in the lesions of syphilis which has made the spirochaetae such an important group of organisms. Had we more time, The Journal more space and the reader more patience we might say something concerning Bosanquet's objections to considering *Treponema pallidum* the proved cause of syphilis (pp. 49-54). In order that the reader of this book may not be misled by misinformation we cannot conclude without making the assertions, all contrary to the author, that gummata are infectious, that their infectivity appears to be directly proportional to the small number of organisms present and that a pathologist could think of reasons, other than "active microbial action," which might explain the "rapid degeneration and softening" that the "considerable mass of inflammatory tissue" composing a gumma undergoes.

O. T. S.

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A Manual of Pathology and Morbid Anatomy by T. Henry Green, M. D., F. R. C. P., Consulting Physician to Charing Cross Hospital and to the Brompton Hospital for Consumption and Diseases of the Chest. Eleventh edition, revised and enlarged by W. Cecil Bosanquet, M. A., M. D. Oxon., F. R. C. P. Lond., Assistant Physician (Late Pathologist) to Charing Cross Hospital and to the Brompton Hospital for Consumption and Diseases of the Chest; Formerly Fellow of New College, Oxford. With 350 illustrations. Lea and Febiger, Philadelphia and New York, 1911.

The present edition gives recognition to the considerable advancement which the domain of parasitology has made in the six years that have elapsed since the tenth edition of Green's Manual was issued. The treatment accorded the animal parasites is better than that given them in other textbooks of pathology of equal size and scope. The phenomena of immunity are summarized and illustrated by diagrams somewhat different from those to which we have become accustomed. The transposition of certain of the chapters—the parasites being now placed before the pathological alterations produced by living organisms, and tumors having a place after the inflammatory processes—is a distinct improvement. The general arrangement of the subject matter differs somewhat from that which obtains in other textbooks. The degenerative processes are grouped together into four chapters whose general subject is arrested and impaired



nutrition. In these and in those devoted to the specific infectious conditions the general discussion of a given process is followed by a description of the same process as it occurs in the various organs. Such an arrangement is better than the sequence used in most books with which American readers are familiar, not only because it shortens the second part of the volume, "Diseases of Special Tissues and Organs," to 200 pages, as compared with the 421 pages which "General Pathology" receives, but also because it gives the reader a broader conception of general pathological phenomena. Exception might be taken to the consideration of caseation as a termination of fatty degeneration.

The book is of very convenient size, is well indexed and, with the exception of a few figures which appear to have been used so often in former editions that they have become somewhat indistinct, is well illustrated. An occasional typographical error is present but the only one which alters the sense is the use of "classification" instead of "calcification" in the table of contents.

O. T. S.

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A Practical Medical Dictionary. By Thomas Lathrop Stedman, A. M., M. D.; Editor of "Twentieth Century Practice of Medicine," Editor of the "Medical Record." Illustrated. Wm. Wood & Co., New York, 1911.

In the making of a medical dictionary there will appear to be little opportunity for variation from other works dealing with the same subject; but of the various medical dictionaries procurable, each differs in some respects from every other one, not only in minor details, such as the arrangement, the use of tables, etc., but more particularly in the spelling of the individual words. In this work the final "e" in chlorine and chloride has been retained, although in most of the modern dictionaries it has been omitted. The final "e" has also been retained in the case of the alkaloids such as morphine, while the diphthong æ is changed to e in such words as anemia, etc.

As regards the arrangement of the work, a decided convenience has been the inclusion of eponymic terms as main titles, e. g., Bright's Disease will be found under "Bright's" rather than under "Disease." In this connection the insertion of brief biographical details concerning individuals whose names are so used adds to the completeness of the work and is a decided advantage.

The dictionary has been very carefully and thoroughly written and repeated reference to it has proved so satisfactory that it can be highly recommended.

W. H. W.

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The Practical Medicine Series. Vol. III, Eye, Ear, Nose and Throat. Edited by Casey A. Wood, C. M., M. D., D. C. L., A. H. Andrews, M. D., and Gustavus P. Head, M. D. Series 1911. The Year Book Publishers, Chicago.

The Year Book for 1910 on Eye, Ear, Nose and Throat is as usual a well condensed but careful review of the year's progress in these subjects. The section on diseases of the eye is by Casey A. Wood, that on ear, nose and throat by Albert H. Andrews, and Gustavus P. Head. Among the topics of special interest may be mentioned the awakened attention now being paid to the education of deaf mutes. The paper read by Dr. A. S. Maschke on Suppurative Otitis Media, before the Academy of Medicine of Cleveland, and published in full in this journal is given special mention. The abundant recent literature on diseases of the labyrinth is fully taken up, and reviewed. Uffenorde's work on the ethmoid is referred to in quotations from articles by Marquis and Skillern.

Altogether the present work is a worthy companion to the other volumes in the series, and is of value both to the general practitioner as well as the specialist.

W. B. C.

**Progressive Medicine.** A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D. Assisted by Leighton F. Appleman, M. D. Volume II. June, 1911. Lea & Febiger, Philadelphia.

This volume of *Progressive Medicine* shows most painstaking work on the part of the collaborators. Being a digest of the advances in various lines of medical work, it consists largely of abstracts of recent contributions which cover a very wide field and render the work unsuitable for a detailed review.

The subject of hernia is taken up by Wm. B. Coley who has covered the ground very thoroughly. A. G. Gerster discusses surgery of the abdomen exclusive of hernia. John G. Clark in reviewing the progress in gynecology pays special attention to cancer of the uterus and has gone into the statistics very thoroughly. Alfred Stengel has contributed a chapter on diseases of the blood, dietetic and metabolic diseases, diseases of the thyroid gland, nutrition and lymphatic system, and Edw. Jackson has taken up the progress of ophthalmology.

*Progressive Medicine* is one of the best works of its kind and greatly facilitates keeping abreast of recent progress.

H. D.

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**Handbook of Suggestive Therapeutics, Applied Hypnotism, Psychic Science.** A Manual of Practical Psychotherapy, Designed Especially For the General Practitioner of Medicine and Surgery. By Henry S. Munro, M. D., Omaha, Neb. Third edition, revised and enlarged. Price, \$4.00. C. V. Mosby Co., St. Louis, Mo. 1911.

This work which now is in its third edition is well printed and consists of 28 chapters devoted to a discussion of psychotherapy in its various phases. The author who is an enthusiast on the subject seems to have accomplished much by psychic means. He apparently has been a close student of this branch of medicine as he quotes freely from the writings and teachings of leading modern psychopathologists.

The book is intended for the general practitioner who will probably find it interesting and entertaining. It will not however appeal to the neurologist or psychiatrist as it contains nothing new or original other than the author's method of hypnosis.

H. H. D.

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**Studies in Cardiac Pathology.** By George W. Norris, M. D., Associate in Medicine at the University of Pennsylvania. Large Octavo of 233 pages with 85 original illustrations. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, \$5.00 net.

In this book no attempt has been made to publish a complete work on the pathology of the heart, the text being chiefly an explanation and an elucidation of the illustrations and but little space has been devoted to a description of the microscopic changes. The photographs have been made of interesting specimens obtained from five of the most important hospitals in Philadelphia. These plates illustrate beautifully almost every variety of cardiac lesion, including lesions of the various valves, pericardium, myocardium, aneurysms and, finally, congenital lesions. The book is a credit both to the author and to the publisher.

J. P.

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**Food and the Principles of Dietetics.** By Robert Hutchinson, M. D. Edin., F. R. C. P. With plates and diagrams. Third edition. Wm. Wood & Co., New York. Price \$3.00 net.

The contents of the book were first addressed to the students of the London Hospital in the form of a course of lectures about 12 years ago. At that time little attention was paid to dietetics, and these lectures were accorded such a gratifying reception by his own students that the author was encouraged to publish them in book form. Since then the work has passed through three editions, the present one being a thorough



revision of the last and contains a new chapter on "Certain Dietetic Cures and Systems." The first part of the book is devoted to the Nature, Nutritive Constituents and Relative Values of Foods, the Amount of Food Required in Health, the Influence of Various Conditions Upon the Amount of Food Required. These chapters are well written and contain a wealth of information. The second part is devoted to a consideration of the different articles of diet, their constituents, food value and preparation. The last part deals with feeding in infancy and childhood and in disease. The part on infant feeding is brief and can hardly be said to be abreast of the times, but this is true of similar chapters in other books on dietetics. The volume is well written and should be a stimulus to teachers of medicine to present the important subject of diet in a much more attractive and instructive form than at present for there is no subject that is so much neglected by medical students and practitioners. It can be recommended as one of the best books on this subject.

J. P.

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**Practical Cystoscopy and the Diagnosis of Surgical Diseases of the Kidneys and Urinary Bladder.** By Paul M. Pilcher, A. M., M. D., Consulting Surgeon to the Eastern Long Island Hospital; Late Surgeon to the German, Seney and Samaritan Hospitals of Brooklyn, N. Y.; Associate Surgeon to St. John's Hospital of Brooklyn; Attending Cystoscopist to the Jewish Hospital of Brooklyn. Octavo of 398 pages, with 233 illustrations, 29 in colors. Philadelphia and London. W. B. Saunders Co. 1911. Cloth, \$5.50 net.

This volume is the best book, in the opinion of the reviewer, that has been written on the subject of cystoscopy. The first section deals with the types and construction of the various forms of cystoscope, with practical directions for the proper care of the instruments and the preparation for a cystoscopic examination. These are exactly the details which are invaluable to those who wish to learn cystoscopy. The technic of bladder orientation and ureter catheterism is explained with great clearness. Sections on pathological conditions on the bladder, prostate and ureter follow with excellent illustrations. A chapter on the newest methods of functional kidney diagnosis brings this subject well up-to-date.

H. L. S.

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### Acknowledgments.

**One Hundred Surgical Problems. The Experiences of Daily Practice, Dissected and Explained.** By James G. Mumford, M. D., Visiting Surgeon to the Massachusetts General Hospital, etc. W. M. Leonard, Publisher, Boston. 1911.

**A Manual of Clinical Diagnosis by Means of Laboratory Methods. For Students, Hospital Physicians, and Practitioners.** By Charles E. Simon, B. A., M. D. Seventh edition, enlarged and thoroughly revised. Illustrated with 168 engravings and 25 plates. Lea & Febiger, Philadelphia and New York. 1911.

**A Manual of Practical Hygiene for Students, Physicians, and Health Officers.** By Charles Harrington, M. D. Fourth edition, revised and enlarged. By Mark Wyman Richardson, M. D. Illustrated with 12 plates in colors and monochrome, and 124 engravings. Lea & Febiger, Philadelphia and New York. 1911.

**Hieronymus Fracastor's Syphilis.** From the Original Latin. A Translation in Prose of Fracastor's Immortal Poem. The Philmar Company, St. Louis, Mo.

**The Practical Medicine Series. Volume IV. Gynecology.** Edited by Emilius C. Dudley, A. M., M. D., Professor of Gynecology, Northwestern University Medical School, etc., and C. von Bachel, M. S.,

M. D., Assistant Professor of Obstetrics, Chicago Polyclinic and College of Physicians and Surgeons, etc. Volume V. Obstetrics. Edited by Joseph B. De Lee, A. M., M. D., Professor of Obstetrics, Northwestern University Medical School. With the collaboration of Herbert M. Stowe, M. D. Series 1911. The Year Book Publishers, Chicago, Ill.

A Manual of Materia Medica for Medical Students. By E. Quin Thornton, M. D., Assistant Professor of Materia Medica in the Jefferson Medical College, Philadelphia. Lea & Febiger, Philadelphia and New York.

Manual of the Diseases of the Eye. For Students and General Practitioners. By Charles H. May, M. D. Seventh edition, revised, with 362 original illustrations, including 22 plates, with 62 colored figures. Wm. Wood and Company, New York. Price, \$2.00 net.

Diseases of the Stomach. With Special Reference to Treatment. By Charles D. Aaron, Sc. D., M. D. With 42 illustrations and 21 plates. Lea & Febiger, Philadelphia and New York.

Reprints by George C. Mizell, M. D., Ph. D., Atlanta, Ga.; L. Vernon Briggs, M. D., Boston, Mass.

### Medical News.

**H. B. Ormsby** will give up his office at East 14th St. and Central Ave. and will continue only his office at 446 Rose Bldg.

**The Stark County Medical Society** met Tuesday, July 18, 1911, at Canton. The following program was presented: 1. Aphorisms, Medical and Otherwise, H. H. Jacobs, Akron; discussion opened by T. Clark Miller, Massillon. 2. Some Observations on Preventive Medicine, L. R. C. Eberhard, Akron; discussion opened by J. F. Marchand, Canton.

**The Erie County Medical Society** met at the Court House, Sandusky, on June 28. John Phillips of Cleveland gave an address on The Diagnosis of Diseases of the Upper Abdomen.

**The Muskingum County Medical Society** were guests of the Normal School at Muskingum College, New Concord, for its July meeting on July 12. The following program was presented: Some of the Causes of Defective and Backward School Children, W. A. Melick, Zanesville. Education in the Prevention of Disease, G. Warburton, Zanesville. The Boy's Part in Life's Problem, D. E. Stephans, Zanesville.

The papers were discussed by the professors of the college and by the physicians, and the question of public education in sanitary and hygienic matters was given a great impetus. The members of the society were the guests of H. F. Lorimer of New Concord for lunch.

**Major W. H. Wright, New Lexington, Capt. F. G. Mitchell, Marietta, and Capt. J. R. McDowell, Zanesville**, all of the Medical Corps, O. N. G., attended the camp of instruction for the Medical Department, O. N. G., held at Coshocton, June 26-30.

**J. T. Davis, Zanesville**, is spending a two months' vacation at Lake Chautauqua, N. Y.

**W. A. Melick and family, Zanesville**, recently took a two weeks' automobile trip through the east.

**M. G. Atkinson, Mansfield**, has sold his practice to Dr. Wise of Millersburg, O., and expects to take a much needed vacation before seeking a new location.

**H. Woltman, Mansfield**, has resumed his practice after a vacation spent at Hillsdale, Mich.



**M. A. Jerome**, Toledo, has sailed from Montreal for a summer in Europe.

**A. J. Girardot**, Toledo, spent a week during July in Coshocton attending the school of instruction for the surgeons of the Ohio National Guard.

**J. D. Salvail**, Toledo, recently spent a ten days' visit in Montreal.

**James A. Duncan**, **A. F. McVety** and **J. H. Jacobson**, of Toledo, after attending the Los Angeles meeting of the A. M. A., made a tour into Alaska.

**W. G. Dice**, Toledo, has gone to Sault Ste. Marie for a two weeks' fishing trip.

**C. N. Smith**, Toledo, is spending his vacation on his farm at Northport, Mich.

**T. M. Crinnion**, Toledo, has returned from a three weeks' auto trip to New York.

**A. E. Scheble**, Toledo, has gone to Green Springs, Ohio, for an outing.

The Council of Toledo has authorized the purchase of a new ambulance.

The District Nurses' Association, of Toledo, has opened on the grounds of their hospital an open air camp for the care of babies.

**County Physicians' Fees in Lucas County:** After a long controversy in the courts over a technicality in the employment of the county physicians, Lucas County has settled with the physicians as follows: Jacob Aftel, \$360.00; T. H. McLaughlin, \$450.00; B. G. Chollett, \$420.00; W. W. Conger, \$420.00; B. W. Patrick, \$360.00; John L. Gorny, \$420.00; and L. S. Tolaska, \$445.00, being payments in full for one year's services.

Toledo had a smallpox scare in July.

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### Deaths.

**Alfred S. Bassinger**, Bluffton, Ohio, died July 7, aged 29.

**Ezra R. Spencer**, Doylestown, Ohio, died July 13, aged 73.

**Benjamin F. Ray**, Cleveland, Ohio, died July 13, aged 68.

**Franciscus Brunning**, Cincinnati Ohio, died July 9, aged 65.

**John M. Crawford**, Cleveland, Ohio, died July 10, aged 67.

**James U. Barnhill**, Columbus, Ohio, died July 27, aged 57.

**Charles M. Beckler**, Blanchester, Ohio, died July 12, aged 43.

**Alexander C. Paisley**, Cleveland, Ohio, died July 2, aged 41.

**James Early Finley**, Mt. Pleasant, Ohio, died July 14, aged 74.

**William G. Fitzsimmons**, Steubenville, Ohio, died June 26, aged 26.

# The Cleveland Medical Journal

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## Upon the Nature and Transmission of Trypanosomes.

By OSCAR T. SCHULTZ, M. D., Assistant Professor of Pathology,  
Western Reserve University, Cleveland, Ohio.

### Introduction.

For the choice of the subject that I am to discuss I am not to blame. The trypanosomes and the diseases caused by them are not of any very mediate importance to us who live in the Temperate Zone, nor does it appear probable, from our present knowledge, that you will ever find it necessary in the future constantly to carry about with you such medicaments as might be helpful in the treatment of any trypanosome infection. But for the physician whose medical horizon is broader than the field of his own private practice the trypanosomes form an interesting group of parasites, very largely because their study illustrates the great share that purely biological research is having upon the advancement of medical knowledge. If I attempt to review the development of the large fund of information concerning the trypanosomes which the recent years have built, it is to be remembered that I can, in the time allotted, pass only very sketchily over the subject.

### Historical.

The first of that group of organisms which we now know as trypanosomes was that found in the blood of frogs, by Gruby, in 1843. He it was who proposed the generic name *Trypanosoma* and he named the frog parasite *Trypanosoma sanguinis*, the second or species name referring to the fluid which forms the habitat of the parasite of the frog as well as the majority of the trypanosomes which have since been described. This parasite was de-



scribed earlier in the same year by Mayer as *Amoeba rotatorium* and it was undoubtedly seen in the previous year, 1842, by Gluge.

The next species, one which has been the subject of a tremendous amount of work, was the parasite of the rat. The evidence indicates that it was seen by Gros in 1845 and by Chaussoy in 1850. The first good description, by Lewis, did not appear, however, until 1879, and in honor of Lewis the parasite was named, in 1882, by Kent, *Herpetomonas lewisi*. That Kent should have placed the parasite in the genus *Herpetomonas* is not a surprising mistake when the very close relationship between *Trypanosoma* and *Herpetomonas*, to be pointed out later, is considered. Later observers noted the possession of those characteristics which place it in the genus *Trypanosoma*. Of earlier observers some considered it a parasite, others supposed the organisms to be spermatozoa which had made their way into the rat's blood and still others thought that they were ciliated endothelial cells derived from the blood and lymph vessels.

With the discovery of trypanosomes in the blood of diseased horses and cattle in Africa, by Evans in 1880 and by Bruce in 1897, the real work upon the parasites began.

#### Biological Position.

The trypanosomes belong to the phylum *Protozoa*, they are single celled animals. Of the five great subgroups or classes into which the *Protozoa* are divided the organisms under consideration belong to the second class, that known as *Flagellata*, characterized by a more or less elongated body and by the possession of one or more (rarely more than four or six) long, whip-like processes, the locomotory organelles termed flagella. The flagellated end is usually anterior. Several species of flagellates are of minor importance as intestinal parasites but the parasites of greatest importance belonging under the *Flagellata* are the trypanosomes and certain very closely allied genera.

#### Morphology.

Externally a typical trypanosome is characterized by an elongated, worm-like body, at the anterior end of which is a single flagellum. The latter structure does not end at its point of attachment but is continued backward as the free margin of the undulating membrane, a thin lamella of the outer layer of the body protoplasm. The size is variable, according to species and

to age; even among the adults of certain species there may be considerable variation in size. Most mammalian species are much alike in appearance and size, varying in length from 15 to 30 micra and in breadth from 1.5 to 4 micra. The flagellum is of variable length, but rarely longer than the body. In some species it is covered to its tip with a thin layer of protoplasm. The trypanosomes of cold-blooded animals may be of a size much larger than that noted; a few of the mammalian species also reach a relatively large size.

#### Nuclear Apparatus.

As important as the external characters is the nuclear apparatus. Situated in the middle or the anterior third of the body is a single, relatively large nucleus, whose transverse diameter almost equals the width of the body. The nucleus is usually somewhat elongated. In the posterior third of the body, usually quite near the posterior end, is a secondary smaller body which takes a dense nuclear stain, the blepharoplast, the name meaning the lash or "winker" body. In this the flagellum, continued back along the free border of the undulating membrane, ends. The nuclear apparatus consists, therefore, of two morphologically distinct elements. There exists a condition of nuclear dualism, a condition widely distributed among protozoa. The two trypanosome nuclear elements have quite distinct functions, the larger controlling the ordinary vegetative activities of the cell, the smaller or blepharoplast controlling, as the name indicates, the motion of the cell through the flagellum and the undulating membrane. The small nucleus controls not only the kinetic energy of the cell in its ordinary locomotion but also the kinesis of division, often inaugurating division and taking the role of a centrosome. Because of these kinetic activities during the vegetative condition and during division the blepharoplast may be termed the kinetonucleus. Concerning the development of the kinetonucleus and its relation to the locomotory apparatus a little more is to be said later.

#### Relation of Trypanosomes to Other Flagellates.

Mention has already been made of the occurrence of a few species of *Flagellata* as intestinal parasites. To at least two genera of these, *Trichomonas* and *Bodo*, the trypanosomes are rather closely related structurally. With several other genera, whose parasitism is much more pronounced, *Trypanosoma* bears



a closer relationship, not only morphologically but also developmentally. The trypanosomes are related, on the one hand, to the higher forms, *Trypanoplasma* and *Trypanophis*, possessing an undulating membrane and an anterior and a posterior flagellum, and on the other hand with the more lowly genera *Herpetomonas* and *Crithidia*, both much alike in the possession of a single anterior flagellum and the absence of a membrane. The latter bear so great a similarity to certain of the developmental stages of trypanosomes that the study of the trypanosome life cycle is rendered very difficult. They are primarily parasites of the intestinal tracts of insects and to the close resemblance that they bear to trypanosomes are due the difficulty in deciding the role of certain insects in the transmission of trypanosome infections and much of the controversy that exists as to the proper interpretation of such protozoan forms as are harbored by insects. It is enticing, but purely theoretical, to think of the trypanosomes as originally harmless commensals of the *Herpetomonas* and

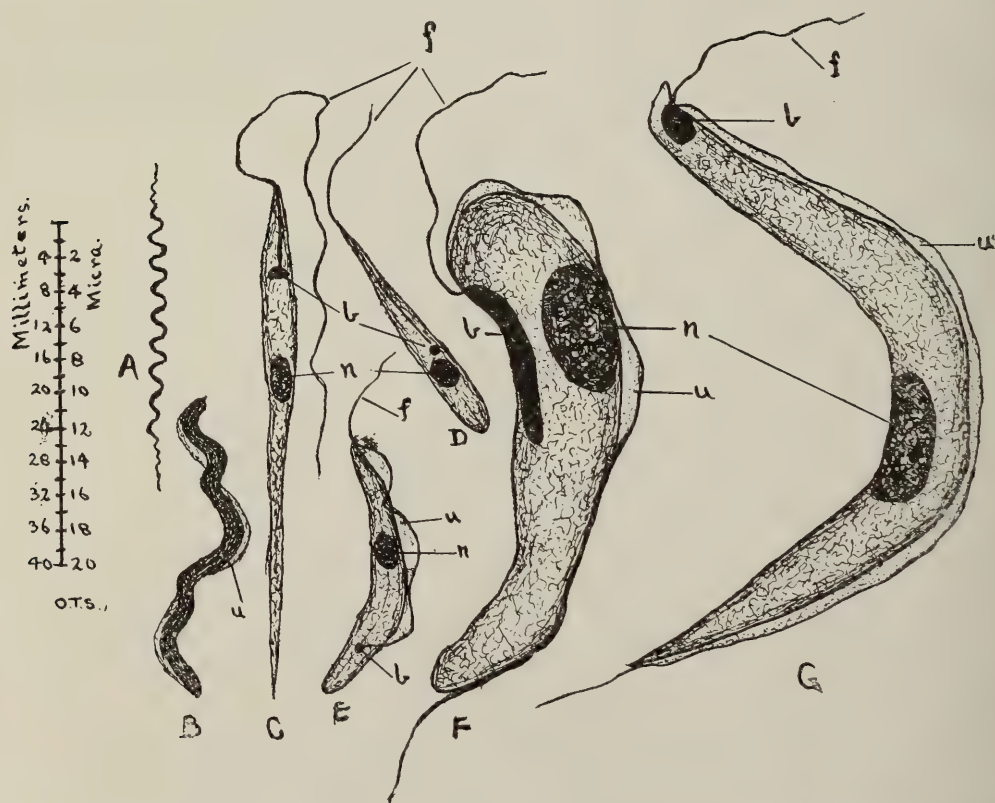


Figure 1. Some parasitic flagellates. A, *Treponema pallidum*. B, *Spirochaeta buccalis*. C, *Herpetomonas muscae domesticae*. D, *Crithidia rinuta*. E, *Trypanosoma lewisi*. F, *Trypanoplasma borreli*. G, *Trypanophis grobbeni*. b, blepharoplast. n, nucleus. f, flagellum. u, undulating membrane.

*Crithidia* types in the intestines of biting insects and that they became adapted to their vertebrate hosts and transformed into the parasitic trypanosomes of the blood after their accidental introduction by the bites of insects. Still lower down, so closely related to the trypanosomes that one of the very large species was originally described as a trypanosome, is the genus *Spirochaeta*, which has a rudimentary membrane but no flagellum. Closely related to the spirochaetae is the genus *Treponema*, which has no membrane but at each end a flagellum-like prolongation. The morphological characteristics of these several genera, all of them of constantly increasing importance to the parasitologist, will be more readily understood from the accompanying diagram

#### Derivation of the Animal Kingdom.

We have been accustomed to consider the animal kingdom derived from plants through the amoeba-like group of organisms claimed by the botanists as *Myxomycetes* and by the zoölogists as *Mycetozoa*. The relationships of the flagellates mentioned above make it appear probable that the animal kingdom may have come from plants along two independent lines, not alone through the amoebae already mentioned. Through the spirochaetae the flagellates may have come from the spirilla and the bacteria.

#### *Flagellata* and *Sporozoa*.

Study of trypanosomes and other protozoan blood parasites is leading to some modification of our ideas concerning the relationships of protozoa to each other along other lines than those mentioned. One great group, the class *Sporozoa*, all of whose members are obligate parasites, has had a separate and anomalous position, its various members having no apparent relationships to other protozoa because of the changes which have been produced by parasitism. At some stage or other in the complicated life cycles of many sporozoan parasites there may occur the kind of nuclear dualism which has already been noted as characteristic of trypanosomes and other flagellates. Because of this, Hartmann has suggested that many of the *Sporozoa* should be taken out of this class and should be allied with the trypanosomes under the *Flagellata* in a division for which he has proposed the name *Binucleata*. According to this view the trypanosomes and the malarial parasites, for instance, would be much more closely related than we have heretofore supposed.



## Zoölogical Distribution.

Under the distribution of the trypanosomes one must consider not only the geographical localization of the parasites but also their host relationships. Practically all orders of vertebrates are infected—batrachians, amphibia, reptiles, fishes, birds and mammals. In all, trypanosomes are primarily parasites of the blood plasma; in mammals they may make their way into the cerebrospinal fluid. In animals other than vertebrates trypanosomes have not been noted, with the exception of two species in the intestinal tracts of certain insects. This latter finding, since it tends to invalidate certain previous work, deserves further consideration under the question of the transmission of the



Figure 2. Distribution of the more important trypanosomiasis. Adapted from Doflein, Lehrbuch der Protozenkunde, 1909.

Equine trypanosomiasis: 1, Dourine (*T. equiperdum*). 2, Mal de Caderas (*T. equinum*). 3, Surra (*T. evansi*). 4, Gambia fever (*T. dimorphon*). 10, Murrina (*T. hippicum*).

Bovine trypanosomiasis: 5, Nagana (*T. brucei*). 6, Galziekte (*T. theileri*).

Human trypanosomiasis: 7, Sleeping sickness, Congo fever (*T. gambiense*). 8, Rhodesian trypanosomiasis (*T. rhodesiense*). 9, Brazilian trypanosomiasis (*Schizotrypanum cruzi*).

parasites. In most of the lower vertebrates the parasites seem to do no damage. Among mammals the most diverse species are infected, the most important being rats, swine, elephants, ruminants (cattle, sheep, goats, camels), equines (horses, mules, asses) and man. Besides these, which become naturally infected, there are many species of mammals for which the parasites are pathogenic upon experimental inoculation. In practically all the mammals mentioned except the rat, the organisms produce disease. Since most of these animals are valuable as food or as beasts of burden the trypanosomiasis constitute an important economic problem.

#### Geographical Distribution.

We are apt to think of the trypanosomes as tropical parasites, and especially as old-world parasites. The present geographical distribution of the trypanosome infections is shown in

Although the Torrid Zone contains the majority of the foci of infection the Temperate Zones are not free, the south Temperate Zone in particular showing a very widespread distribution. The line BB represents the same latitude north as the line AA, which passes through the extreme southern limit of the African trypanosome belt; and the line ZZ, corresponding in latitude north to the line XX, which passes through the southernmost limit of infection in South America, would include the northern United States and even the southern part of Canada. The map refers only to the infections of the larger mammals. The infections of rats, birds and fishes are widespread throughout the earth and bear no relation to latitude or longitude. It is apparent from the map that trypanosome infection of man and the larger mammals is not a matter of latitude and the associated climate and temperature, but rather of the proper association of mammalian host, transmitting host and parasite. The limitation in the northern hemisphere, that is, in the more civilized portions of the globe, is probably due to the absence of the proper transmitting hosts.

It is of interest to compare Figure 2 with Figure 3.

The increased extent of infection at the present time (Figure 2) over that of 1904 (Figure 3) is only in part an indication of the spread of infection by travel and commerce. The presence of human trypanosomiasis in Brazil does not mean that the



disease has been imported from Africa. The parasite of the Brazilian disease differs from the African form and the transmitting host and the clinical manifestations are different. Factors more important than travel and direct spread of infection in explaining the present widespread distribution are the extensive and intensive researches of recent years.

In addition the the zoölogical and the geographical distribution we must take into consideration also the transmitting host distribution, the presence of trypanosomes in those animals which transmit the parasites. This can be done better under the subject of transmission.

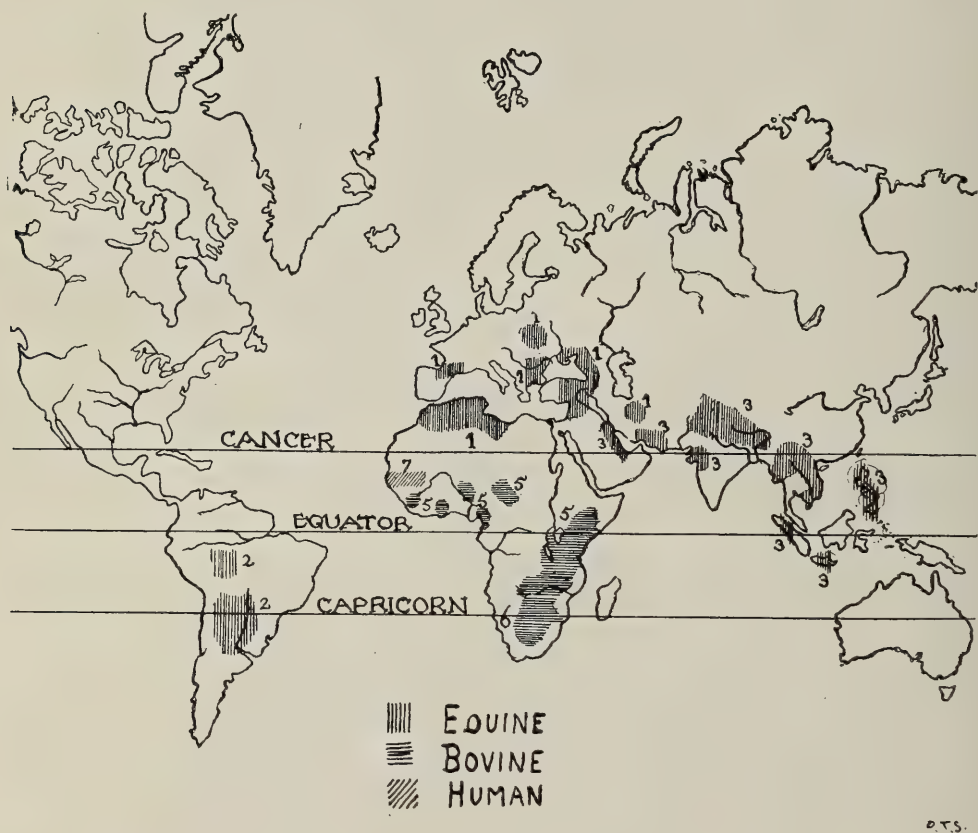


Figure 3. Distribution of the more important trypanosomiasis. Adapted from Laveran et Mesnil, *Trypanosomes et Trypanosomiasis*, 1904. Equine trypanosomiasis: 1, Dourine. 2, Mal de Caderas. 3, Surra. Bovine trypanosomiasis: 5, Nagana. 6, Galziekte. Human trypanosomiasis: 7, Sleeping sickness, Congo fever.

### Developmental Changes in the Vertebrate Host.

In spite of the large amount of work which has been done the complete life cycle of any mammalian trypanosome cannot yet be considered established. In the vertebrate host there occur

repeated binary longitudinal divisions. Multiple divisions may lead to the formation of rosettes composed of four or more individuals. Both of these types of multiplication are asexual, corresponding to the type of reproduction of the malaria parasite in the human host. In the vertebrate host the adult forms may show certain variations in size and in protoplasmic structure, which are considered early stages in sexual differentiation.

#### Cultural Forms.

Trypanosomes and certain very closely allied flagellates are the only protozoa which can be cultivated upon artificial media. In cultures the reproduction is also asexual and the divisions occur in the same way as in the vertebrate host. In the rapidly repeated asexual multiplication in the vertebrate host and in cultures small forms result which depart from the typical morphology of the genus. The kinetonucleus approaches the somatic nucleus and may even be anterior to the latter; the undulating membrane disappears. Thus there result forms not to be distinguished from *Crithidia* and *Herpetomonas*. Since the latter genera are parasitic in the intestinal tracts of insects it is evident that the structural similarity mentioned may be, and in fact has been, the cause of much confusion in the study of the part played by insects in carrying trypanosome infections.

#### Transmission

That portion of the life history concerning which there is most doubt and controversy is best considered, therefore, under the subject of transmission. Trypanosomes are parasites of the blood plasma. It was a natural and logical conclusion to suppose that they are transmitted by blood sucking animals which, in taking blood, transfer the parasites from one vertebrate host to another. This *a priori* belief was supported by the study of natural infections among animals in Africa. Long before the cattle infection, nagana, was shown to be due to *Trypanosoma brucei* it was known that the occurrence of the disease was coincident with the distribution of certain species of blood-sucking flies, that it occurred in regions known as "fly belts," and it was called tsetse fly disease before we knew that it was a trypanosomiasis. That flies had a necessary part in the transmission of disease was more than probable and the important point, after the parasite was discovered, was the determination of the exact role of the



fly. It became necessary to determine whether the fly is merely a mechanical carrier, as is the case in typhoid; or whether it is a necessary host, whether the parasite must go through a definite portion of the life cycle within the insect, as is the case in malaria. Trypanosomes may be transmitted from one vertebrate to another by the direct inoculation of blood. Dogs may become infected with *Trypanosoma brucei* when fed with the flesh of cattle dead of nagana. These two points indicated that the parasites might live in the intestine of the fly and might be inoculated directly into a new vertebrate host if the insect had previously fed upon an infected animal. The first experimental work done with flies showed that they can carry the infection directly, mechanically, before there is time for any developmental change in the parasite.

Koch then noted the presence in flies of forms different from those of the mammalian blood upon which the flies have been fed. He considered the structural modification an evidence of sexual differentiation. He described also the formation of small *Crithidia*-like forms, which he believed to have been derived from the differentiated forms after fertilization. Koch's work indicated that the fly might be more than a mere mechanical carrier.

To Koch's conclusions Novy offered very serious objections. The small forms seen in the intestines of insects are exactly like the small forms which occur in cultures. The former, like the latter, might, therefore, be simply asexual "cultural forms," which need have nothing to do with the possibility of a sexual cycle in the insect. The very striking similarity of these "cultural forms" with *Herpetomonas* and *Crithidia*, parasites of the insect intestine, rendered it possible that Koch's small forms might be insect parasites, that they need not have anything to do even with an asexual trypanosome life cycle. Most important of all, Novy noted also in African tse-tse flies two species of true trypanosomes. These are quite different from each other and from the mammalian forms and he believed that true trypanosomes might occur as parasites of the fly intestine, that the trypanosomes met with in the insect intestine need not, therefore, have come from the vertebrate from which the insect had taken blood.

Bruce used flies bred in captivity and reared in the laboratory from larvae. He found that flies can transmit the infection directly in a mechanical way, but only for the relative'y short period of 48 hours. Then there follows a long period of up to

34 or even 40 days, during which the fly is not infectious. Then it again becomes infectious and remains so throughout the rest of its life. These findings constituted very strong presumptive evidence that the parasite goes through some portion of a cycle in the insect. Koch's male and female forms were found by Bruce, but further stages in the cycle within the fly could not be traced.

The work of Kleine and Taute was of the same experimental nature as Bruce's and led to the same results, but was even more conclusive. The objection to Bruce's work, that the forms seen in the intestine of the fly were fly parasites and not true mammalian trypanosomes, had some justification because of the knowledge that other protozoan parasites—*Babesia* or *Piroplasma* of Texas cattle fever, *Spirochaeta* of human relapsing fever—may be transmitted through the ova of the transmitting insect to the next generation. Kleine and Taute showed that none of the ordinary insect *Crithidia* are transmitted through the ovum to the young, that flies raised in the laboratory are free of flagellated parasites until fed with the blood of an infected mammalian host. Then, and only then, occur the male and female forms described by Koch and by Bruce. The original number of parasites is small and remains so throughout the long period during which the fly is not infectious. It is during this interval that the sexual phenomena occur. After fertilization large amoeboid forms were seen and, at a later stage, actively motile parasites are present in the intestinal tract of the insect in large numbers. Encysted resistant forms do not seem to be produced. The trypanosome apparently does not become a parasite of the body cavities and the tissues of the insect, as is the case with the malaria parasite in the mosquito, but remains in the intestine and its associated tubules. Transmission from the fly to the vertebrate is not by way of the salivary secretion, but by the active migration of the parasites upward through the intestine during the sucking of blood. The work of Bruce and of Kleine and Taute seems to invalidate Novy's contention that parasites seen in insects are more probably only insect parasites, and greatly weakens Novy's position in regard to the occurrence of true insect trypanosomes, based upon the belief that *Trypanosoma tullochii* and *Trypanosoma grayi* of the African tse-tse fly have nothing to do with the trypanosomes of vertebrates. Kleine and Taute's work with lab-



oratory-raised flies seems to show quite conclusively that Novy's *Trypanosoma grayi* is a stage, within the fly, of the very large trypanosome of the crocodile and that *Trypanosoma tullochii* is a stage, within the fly, of *Trypanosoma gambiense*, the human parasite.

In addition to the species of *Glossina* or tse-tse fly, which transmit the human disease and several forms of cattle and horse infections, other flies—species of *Tabanus* or horse flies, of *Stomoxys* or stable flies—may act as hosts. In given cases insects other than flies may act as transmitting hosts—the rat louse for the rat parasite, *Conorhinus* or “cone noses” for the human Brazilian disease. Finally, blood-sucking animals other than insects (leeches, etc.) may transmit the infections of aquatic vertebrates. Specific trypanosome parasites seem to require not only specific vertebrate hosts, but also specific transmitting hosts.

#### Life Cycle of the Trypanosome of the Owl.

Although the sexual portion of the cycle of mammalian trypanosomes is still shrouded in considerable mystery Schaudinn's work upon the blood parasites of the owl gives some indication of the complexity which a trypanosome life history may show. The blood of a certain species of owl may contain at the same time several parasites heretofore considered distinct species: *Proteosoma* (a parasite of the red blood corpuscles), *Haemoproteus* (another sporozoan parasite of the red corpuscles), *Leukocytozoön* (a sporozoan parasite of the white corpuscles) and *Trypanosoma* (of which at least two species may be present). According to Schaudinn the avian malaria parasite, *Proteosoma*, is a true and distinct species. Of the remainder, *Haemoproteus noctuae* and one species of trypanosome are parts of the same cycle, whereas *Leukocytozoön siemanni* and the other trypanosome constitute the cycle of another and distinct species. The latter trypanosome gives rise to very slender, elongated forms which were originally described by Töpfer as spirochaetae. Schaudinn described the entrance of small trypanosomes into the corpuscles and traced the development of the corpuscular parasites from these. The adult corpuscular parasites undergo sexual differentiation, become fertilized in mosquitoes of the genus *Culex* and give rise to young trypanosomes which repeat the infection of the owl. In the development of trypanosome forms

he traced the formation of the blepharoplast from the original single nucleus of the corpuscular parasites, and showed that the flagellum, the marginal fibril of the undulating membrane and the contractile fibrils of the body are formed from the spindle fibers of the division figure produced when the blepharoplast divides. Schaudinn's observations were most astounding, especially in showing the close relationship of parasites always considered distinct species. The correctness of his views has been doubted by many observers. Gradually bits of the remarkable work are being confirmed, and recently Mayer has confirmed practically all of the essential portions of Schaudinn's observations in another species of owl. From the work outlined one must conclude that mammalian trypanosomes undergo the sexual portion of the life history in the bodies of the blood-sucking insects which transmit them and that the insects are much more important as true hosts than as mechanical carriers.

#### Diseases Caused by Trypanosomes.

The great importance of trypanosomes as pathogens, results from the causation of disease by them in man and in valuable domestic animals. In regions where trypanosome infection occurs the economic damage is almost incalculable. The destruction of horses and cattle in Africa has markedly retarded the development of that continent by European nations.

#### Pathogenic Action.

In the several specific trypanosomiasis of man and the larger mammals the pathogenic action of the parasites is much the same in general, only certain elements of the clinical picture predominating in individual diseases. The common manifestations are fever, marked anemia, emaciation, edema of the dependent portions of the body, loss of nutrition of the skin, enlargement of the spleen and lymph glands, and finally paralysis. These manifestations are chiefly the result of toxins produced (the immunity after recovery being an indication of toxic action); to a lesser degree they are due to capillary emboli of parasites (as in malaria in the fatal pernicious forms).

#### Specific Trypanosome Infections.

The specific trypanosome infections are described in the literature under the original local means by which the diseases are known. Only the more important ones are listed below.



Often both bovines and equines, and even other mammals, may be the victims of the same species of trypanosome:

*Cattle:* Nagana, tse-tse fly disease, due to *Trypanosoma brucei*, occurs in Africa from the Sahara to the Cape.

Galziekte, biliary fever of the cattle of the Transvaal, of East Africa, India, Transcaucasia. This disease was originally ascribed to the large parasite, *Trypanosoma theileri*. Recently doubt has been cast upon the etiological relationship of the parasite to the disease.

*Other ruminants:* Tahaga, a disease of dromedaries in Nigeria.

El debab, of the dromedaries of southern Algeria. Both these diseases are due to *Trypanosoma soudanense*.

Mbori, in the camels of East Africa, is due to what is apparently a variety of *Trypanosoma evansi*.

*Equines:* Surra, caused by *Trypanosoma evansi*, occurs in India and in practically all southern Asia and the neighboring islands, in the Philippines and in Australia. It has been transported to Mauritius, Madagascar and East Africa. The horse and mule are chiefly infected, although the elephant and the buffalo may contract surra.

Dourine, mal du coit or horse syphilis, is due to *Trypanosoma equiperdum*. The disease occurs in northern Africa, southern Spain, the regions of Europe bordering the Black Sea and in western Asia. Some years ago it was imported into the western United States, but was soon controlled and eradicated. The peculiarity of the disease is its transmission by coitus, which explains the greater ease with which this particular form of trypanosomiasis can be controlled. Transmission by insects under natural conditions has never been established. Geographically dourine is the most northerly of the trypanosomiasis.

Mal de Caderas, loin paralysis, is caused by *Trypanosoma equinum*. In its distribution in South America, from the Amazon to southern Argentina, it is the most southerly of the trypanosome infections.

Gambia fever of West Africa is due to *Trypanosoma dimorphon*.

Murrina, a disease of horses on the Isthmus of Panama, has recently been shown by Darling to be caused by *Trypanosoma hippicum*:

*Human:* Sleeping sickness, a disease of the natives of Africa, has been known since the travels of Winterbotham in 1808. At first apparently limited to Gambia on the west coast of Africa it now occurs in practically all the south central portion of the continent from coast to coast. It has been transported to western Asia and to the West Indies (Martinique). The estimated death rate in Africa in the last ten years is over one hundred thousand. The parasite, *Trypanosoma gambiense*, was discovered by Dutton in 1902.

Congo fever is a disease of the whites and the more susceptible natives in Africa. The parasite is *Trypanosoma gambiense*. The infection differs clinically from sleeping sickness and is more rapidly fatal, because of the greater susceptibility of the white races.

Rhodesian trypanosomiasis. In a febrile disease of northern Rhodesia Stephens and Fantham in 1910 described as *Trypanosoma rhodesiense* a parasite which they think is not the same as *Trypanosoma gambiense*.

In the Brazilian human trypanosomiasis children are chiefly infected. The parasite, *Schizotrypanum cruzi*, differs from all the other mammalian trypanosomes in that an intra-corpuscular stage has been described by the discoverer, Chagas.

In conclusion, I can only hint at the fact that Ehrlich's work along the lines of specific chemotherapy had its inception in the study of the action of certain substances upon trypanosomes. Important from the biological standpoint is the development, by the trypanosome, of an immunity toward the substance used and the inheritance of this immunity by succeeding generations of the parasite.

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### Macroglossia, Report of a Case.

By JULIUS H. COMROE, A. M., M. D., Physician to York Hospital, York, Pa.

The patient, R. K., female, aet. three years, was born in the United States.

The family and past histories are absolutely negative. She is the ninth child of healthy parents.

Present history: Immediately after birth, it was observed that the child had a very large tongue, which appeared to be normal in every other respect. When the teeth began



to erupt, the tongue became very much thicker and many small papillae appeared on the anterior portion. After the first year, both the tongue and the papillae became rapidly and progressively larger, and appeared to take on a bluish color. About one year ago, the entire tongue became quite sore, and there developed rather an alarming hemorrhage, which was controlled with some difficulty. Since then there have been several smaller hemorrhages. There has never been much difficulty in mastication, and the speech has been fairly distinct.



Fig. 1.

Physical examination showed a robust, well nourished child of splendid intellect. The swollen and cyanotic lips were bulged forward by a very much thickened, excoriated, violaceous, papillary mass, which represented the anterior portion of the tongue. When the tongue was protruded, it was found that the anterior half of the organ was considerably hypertrophied and was profusely studded with papillae varying in size from a small pinhead, posteriorly, to a small pea, anteriorly, and separated by many irregular fissures.

Many of the papillae were pustular, and the tongue presented a very angry appearance. (Fig. 1.) The posterior half, however, appeared to be not only healthy but of considerably smaller size, such as might be expected in a child of such age. The anterior margin of the tongue, which protruded between the lips, was about  $2\frac{1}{2}$  cm. in thickness, and 5 cm. in width. With the teeth in contact, there was a space of about  $2\frac{1}{2}$  cm. between the incisors. A consultation with B. H. Pearce, D.D.S., revealed the fact that only the molars came in contact with each other, owing to the deformity of the lower jaw. This readily explained why the child invariably placed all solid food far back in the mouth before she attempted any mastication.

A small section of the anterior portion of the tongue was excised for microscopical examination. There was a most marked overgrowth of connective tissue with profuse infiltration of white cells in the form of lymphoid tissue. Numerous capillaries were present. The pathological diagnosis was therefore lymphangioma.

After outlining a thorough course of antiseptic toilet for the mouth, an operation was urged, and was performed by Dr. Archibald C. Harrison, of Baltimore. Dr. H. Kohler, a brother of the patient, who witnessed the operation, informs me that a "V" shaped section was removed, including the involved tissue. The child made an uneventful recovery and was discharged on the eleventh day.

Today, four months after the operation, the tongue, except for some slight thickening, appears to be quite normal in every respect. Already the space between the incisors has diminished perceptibly, and the child can close the mouth quite readily without exhibiting any apparent deformity. (Fig. 2.) The operation has proved a brilliant success, and nature has already begun to correct the previously existing deformities in the jaw and teeth.

Macroglossia (also known by the synonyms: megalglossia, glossoptosis, prolapsus linguae, lingua propendula, chronic prolapse of the tongue, chronic intumescence of the tongue) is a comparatively rare affection. The first case on record was described by Galen. Cases were also recorded by Celsus and Avicenna. It was known and described by Scalliger (1570), Bartholin (1680), Benedict and Pencer, Lassus,



Percy, Harris, Humphrey, Gayraud, W. Fairlie Clark, Bryant, and others.

Its etiology is rather indefinite. Macroglossia is usually congenital and is especially marked in cretins. It is sometimes associated with idiocy. The condition is probably intra-uterine in origin. The majority of cases have occurred in females. As a rule, it attracts little or no attention until dentition has already begun, and the hypertrophy is most active during the second or third year. For this reason, it is possible that the process of sucking and the continuous irritation of the teeth serve as mechanical contributory causes



Fig. 2.

for more rapid growth. It has been said to have been produced by convulsions, epileptic seizures, and pertussis.

The enlargement is usually bilateral and symmetrical, and the tongue is free from pain unless complications arise. There is always more or less protrusion of the tongue. Dep-lech reported one case in which the tongue was ten times the normal size. Follen and Duplay have also reported unusual cases. The organ usually presents a quite livid discoloration, and is hard, dry, rough, fissured, ulcerated and sanious, covered with desiccating layers of mucus, epithelium, etc. The

lower lip, especially, is thick and cyanosed and of parchment-like consistency. The lower jaw and the teeth are much disfigured, the latter carious. Suction, mastication and deglutition are oftentimes difficult because of the forcing forward of the lips, larynx and velum palati by the weight of the tongue. In fact, tracheotomy has already been found necessary to produce immediate symptomatic relief. At times, owing to a compensatory curvature of the lower jaw, mastication can be carried on only by the molars, and the bolus of food must be pushed back and placed between these teeth.

The pathology of macroglossia is self-evident. Most cases are due to changes affecting the muscular tissue (Sédillot, Paget, Bouisson). The papillae as well as the mucous and submucous tissues are enlarged and thickened, and the numerous bundles of muscular fibers are considerably coarser. In other cases, the blood vessels and lymphatics are chiefly involved (Virchow, Billroth, Maas), producing lymphangiomas.

Rotch classifies two varieties of macroglossia: (1) fibrinous, in which the connective tissue is pathologically increased between the muscular fibers, and (2) cavernous cystoid degeneration of the interstitial connective tissue, by which the resulting spaces come in connection with the lymph vessels, constituting a condition closely resembling cavernous angioma, hence the term "lymphangioma cavernosum."

Macroglossia may also be produced by lipomata or other forms of congenital tumors; by congenital cysts, retention cysts or those of new formation; and by blood vascular tumors in or beneath the tongue.

The diagnosis of macroglossia should present no difficulty. It is easily differentiated from chronic glossitis, specific or non-specific, and cannot be confused with malignant diseases of the tongue. The history of the case, its rapid but benign progress, and, if necessary, a microscopical examination make the diagnosis easy.

As a rule, there is no medical treatment of a typical case of macroglossia, with the exception of the preliminary use of antiseptic and mildly astringent agents. Few cases have been reported in which patients lived until a very old age with any other treatment. Surgery offers the only means of per-



manent cure, and with the aid of a skilled surgeon, a good plastic result can be assured. This method of treatment should be resorted to as early as possible, in order to avoid as far as possible the deformities of the jaw and teeth. Recurrence is a rare exception, and reenlargement of papillae can be reduced by chromic acid or the actual cautery.

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### **A Case of Malformation of the Heart.**

By E. P. EDWARDS, M. D., Resident Pathologist, Lakeside Hospital, Cleveland.

The rarity of cardiac anomalies, the obscurity of their etiology and symptoms, together with the fact that they are so often of serious clinical import, make the subject of congenital heart disease of great interest. It has attracted the attention of many of the ablest workers in the field of cardiac pathology. Many of the early writers, including Morgagni, William Hunter, Meckel, Louis Farre, Paget and many others, made special contributions on the subject. Peacock's "Malformations of the Human Heart," published in 1858, is the earliest compiled study of the subject, and remains still a classic and leading authority in English. The minor variations from the normal are naturally more common and of little importance, but the cases in which the whole of the blood current is changed are quite rare and necessarily cause the greatest disturbance. Those anomalies, in which there is merely a defect in the cardiac septum, are quite common and have little effect on the general circulation as a rule, but when the whole pulmonary circulation is involved, the body is seriously handicapped and the outlook for long life is very doubtful.

Excluding septum defects alone, the above type comprises a large majority of malformations, the case here reported belonging to this class. The lesion consists in a stenosis or complete atresia of the pulmonary artery at some point between the pulmonary valves and the ductus arteriosus, or involves the whole of this portion of the pulmonary artery. With this there is necessarily a defect in the interventricular septum or a patent foramen ovale, as the blood must have some means of escape to the left side of the heart. It then

reaches the lungs through the ductus arteriosus and the bronchial arteries, or in case the ductus arteriosus is closed, through the bronchials alone, or, as in one case reported, through an anomalous branch of the left subclavian.

When the septum between the ventricles is closed, the course of the blood is through the foramen ovale from the right auricle to the left. The right ventricle, being left out of the circulation, becomes very small or is almost obliterated, while the left ventricle, which is then called upon to maintain both circulations, becomes large and powerful. The heart then resembles that of the chelonian reptile or turtle.

Clinically these cases always belong to the so-called "blue babies." The physical findings, as regards the heart, are of course very variable and as a rule indefinite.

A baby of this type entered Lakeside Hospital in October, 1910, with the complaint of cold in the head and rash. The history reads as follows: Father not known; mother living and well. The child was born at full term with normal delivery, was breast fed for three weeks, then fed on Horlick's malted milk. It was well in every way since birth except for the skin eruption, but always very blue. It had had some coryza the last four weeks before admission. It took food eagerly, and the bowels moved regularly. The stools were normal. Physical examination reveals a fairly well developed and well nourished babe of about two months. The cyanosis, which is general and very marked, is increased to a plum color on the lips and tips of nose and ears when the child cries. The voice is weak, but there is no sign of dyspnea. There is a dark red macular eruption about the axillae, which extends down the left side to the thigh. The cervical and inguinal lymph nodes are distinctly enlarged. The eyes seem prominent, the lids swollen and conjunctivae injected, but the cornea are clear and there is no discharge. The nose is well formed. There is considerable discharge of mucus, and snuffles with respiration. The ears are peculiarly crumpled. The mucous membrane of the mouth is plum colored, and coated with a thin white false membrane. The thorax is well formed and symmetrical. The respiratory movements are regular and the excursion good. There is no retraction at the costal border or at the suprasternal notch. The rate is 30 per minute. The lungs are everywhere resonant on percus-

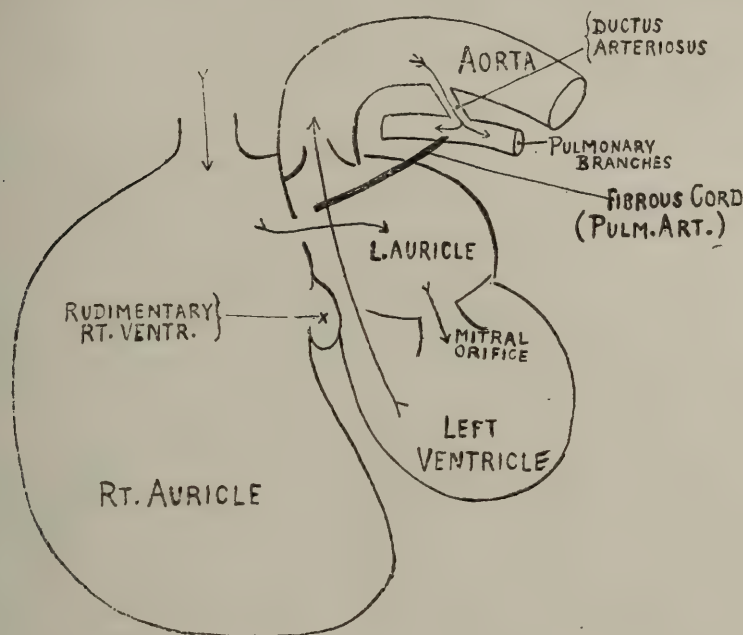


sion and there is nothing remarkable about the breath sounds on auscultation. The precordial area shows no bulging or pulsations. There is no pulsation or impact palpable. On percussion the area of heart dulness is found to extend from the left nipple line, fourth interspace to the right parasternal line. The sounds are heard distinctly at the apex. The second sound is accentuated in the pulmonic area. There are no adventitious sounds. Abdomen full-rounded, soft. The spleen is palpable 2 cm. below the costal margin. The liver dulness begins at the fifth rib in the midclavicular line and is palpable 7 cm. below the costal margin.

A diagnosis of congenital lues was made, and inunctions of mercury were administered. The child lost weight steadily and its appetite gradually failed. The cyanosis grew worse and it was not affected by the administration of oxygen. The superficial veins of the head and neck seemed to grow more prominent. Its symptoms continued to grow worse and it died after two weeks.

At autopsy the following conditions were found in the thoracic cavity. The lungs are only partly collapsed. The pleura shows nothing remarkable. The heart and pericardium are enlarged. The heart extends from a point to the right of the sternum to the left nipple. The pericardium shows no changes. The heart presents a remarkable appearance. The larger part of the organ seems to consist of the right auricle. The right heart composes at least two-thirds of the whole organ. The venae cavae are large and distended. The right ventricle is not to be made out on inspection. On dissection the following changes are found: The right ventricle is enormously dilated. The walls are thin, and the musculi pectinati prominent. The foramen ovale seems entirely closed, but a probe can be passed through the very much thickened septum at one point. The tricuspid orifice and right ventricle are represented by a mere pit in the mesial wall of the auricle below the foramen ovale. This pit is 8 x 5 mm. Leading from the rudiment of a ventricle, along the anterior portion of the aortic ring, can be traced a fibrous cord about 4 mm. in diameter, which is evidently the obliterated pulmonary artery, for it is attached to the ductus arteriosus where that vessel joins the branches of the pulmonary. The left auricle is about normal, but the left ventricle is large. The wall averages

6 mm. in thickness. The mitral and aortic valves show no changes. The aorta is very large but smooth and elastic. The ductus arteriosus easily admits a 2 mm. probe and it is plainly continuous with the first branches of the pulmonary artery, so that the blood reaches the lungs through it. The lungs show considerable change. They feel firm and only sparingly crepitant throughout, and the cut surface has a rather even,



red, fleshy appearance, as if there were considerable atelectasis. Microscopic sections show this to be true. Other organs show no remarkable changes.

The prognosis in these cases is bad. Most of those previously reported lived from 2 to 5 days up to 2 to 6 weeks. One case very similar to this one, reported by Hare, lived nine months. The viability is less when the obstruction to the pulmonary artery occurs later in fetal life, after the inter-ventricular septum is formed. In cases of this class death has occurred usually inside of six weeks. The difference is apparently due to the facility for circulation of the blood when the ventricular septum is imperfect. In this case the passage was not only interauricular, but very small and quite inadequate for the whole blood stream, causing not only an ischemia of the lungs, but a venous stasis throughout the whole body. The course of the blood is roughly represented in the accompanying diagram.



### Surgical Ideals and Experiences.

By N. STONE SCOTT, M. D., Cleveland.

This is not an attempt to moralize concerning those ideals which in general do, or ought to, actuate our profession; but rather an informal discussion—an intimate expression of thought among friends—concerning a question which closely touches patient, family physician, and operator. I refer to the trend of the times as reflected in the method of operation in abdominal surgery, and more specifically to the advantages, in its own place, of the short incision.

It is axiomatic to say that the absolutely ideal condition is that of perfect health. When there is any departure from this physical perfection, the ideal treatment is one that will fully restore to health with speed and ease. Among medicines a remedy which fulfils these conditions is called a specific. Many remedies more or less nearly approach the ideal, but, as a matter of fact, there are few specifics.

The surgeon's knife never fulfils all the conditions of the ideal treatment; and so, when medicine will completely cure the patient as speedily and easily, it is to be preferred to surgery. But we all know that surgery is often the best, sometimes the only way, to restore the patient to reasonable health. Therefore when restoration is effected quickly and fully, we speak of it as an ideal result. When, in addition to this, there is a minimum of traumatism, the operation may be called ideal—a relative term, but one which, for lack of a better, must answer our purpose.

An ideal operation presupposes an ideal patient, having a disease amenable to ideal treatment; and an operator who is convinced of the advantages of the ideal operation—one who is both able and willing to carry out the necessary technic.

First, who is the ideal patient? He, or more frequently she, is of lean rather than fleshy physique, elastic to rebound, neither a bleeder nor neurotic, sensible, and of a philosophical turn of mind, tending toward optimism. Such a patient suffering from some local disease, unattended by complications, and affecting organs which can be so restored or removed as to heal without undesirable adhesions, is a fit subject for the

ideal operation. The abnormality most amenable to the ideal operation is either itself freely movable, or else is found in organs that can be readily brought through a small incision, such as an appendix which has a long mesentery, or an ovarian tumor without adhesions, with a long, small pedicle.

Unfortunately, very few surgeons attempt ideal operative surgery in abdominal work, which, as has been already stated, is the field I have chosen for today's topic. A majority of operators have not a realization of the advantages to the patient of this method. For this reason they lack the resultant determination to work out a careful technic at the sacrifice of personal convenience to themselves. To be sure, greater skill is required on the part of the surgeon. Then too some men are handicapped by their physical conformations—their fingers are short and too thick. Others have not a *tactus eruditus* well developed, they must always make a large enough incision so that the finger may be guided by the eye. These frequently excuse themselves by the ridiculous assertion that a long incision will heal just as quickly as a short one. Of course every surgeon knows that the long incision has its legitimate place. I am advocating the short incision only when it is more conducive to the speedy, easy, and complete recovery of the patient. The surgeon who has secured his training and the practice for his fingers in the dissecting room, has become accustomed to making free dissections. Such carry their habits of thought and methods of work over into their surgery. Nor will they practice the short incision until they have retrained themselves into new habits and methods.

In order to be able to practice this method, a surgeon must first be a careful and accurate diagnostician; not relying upon large incisions at the time of the operation for the purposes of examination of distant organs. If the case is so complicated that widely separated organs need examination or treatment or both, it is better to make multiple, short incisions than the one long incision frequently seen, even in some of our largest clinics. One physically qualified by nature, well grounded in anatomy—not only in the theoretical knowledge of the subject and the appearances of the parts in the dissecting room, but knowing how the normal and pathological tissues feel in the living subject—one who is master of operative technic, and conscientious to the point of preferring the wel-



fare of the patient to his own convenience; this is our ideal surgeon.

Let us suppose that he has correctly diagnosed in detail a simple case of chronic appendicitis, which, by the way, is typical of the disorders especially amenable to the ideal operation, his technic will be, with minor variations, the following:

A short incision is made over the appendix. No muscle or fascial fibers are cut. These are instead separated just enough to admit the introduction of the index finger, with which a careful examination is made of all the structures within reach. Not only are the appendix, caput coli, and small intestine within easy range, but the pelvic organs on the right side and the lower pole of the kidney can usually be examined; also, if you will pardon the personal illustration, I have on several occasions been able to reach the left tube and ovary, and more rarely the lower edge of the liver together with the fundus of the gall bladder.

After examination has verified the diagnosis, the appendix is brought up to the surface with the hooked index finger; if it cannot be delivered by this means, the finger is withdrawn, the edges of the wound are separated by narrow retractors, and the appendix is delivered by means of narrow forceps. Should the appendix be adherent, it is still often possible, without enlarging the incision, to deliver it by a careful dissection made by the index finger. Considerable force can be used in this dissection, if the appendix does not lie upon the ureter or the iliac artery and vein. When it is adherent to these structures great care must be exercised.

After the appendix is delivered the rest of the operation is easy, because it is now extraperitoneal. In fact, from this point on the surgeon's work is often easier than with a long incision; because the sides of the short incision press upon the partially delivered caput coli and effectually seal off the general peritoneal cavity. When the intraperitoneal part of the operation is completed and the intestine returned, it is surprising how the parts fall into place. No stitches are really needed with a three-quarters inch incision, except a skin stitch; although I do usually stitch the fascia as an extra precaution; and, if the patient has a thick layer of adipose tissue on the abdomen, I stitch that together, in order to diminish the possibility of a stitch abscess.

This same technic is carried out in all operations on intra-abdominal, movable organs; a gall bladder can be drained through an inch incision; an ovarian tumor, no matter how large, provided it has a small pedicle and no adhesions, can be removed through an inch incision; even a gastro-enterostomy can sometimes be performed through an incision not more than two inches long.

In acute cases the same methods may be used with advantage, but with important modifications. In operating for an acute appendicitis for instance, if, after the abdomen is opened, a circumscribed abscess is found, one assistant is given charge of the retractors, and told that under no circumstances is he to let the abdominal wall close; lest he convert the case from a circumscribed form to a case of general peritonitis; indeed, every manipulation must be made with the greatest of care. Before the abscess is opened gauze should be carefully packed, so as to direct the pus immediately to the outside of the abdomen. After the cavity is thoroughly cleansed, the appendix is removed, and drainage inserted, then, and not till then, are the retractors withdrawn.

Even in acute general peritonitis the short incision is better than a long one; because it admits of the removal of the appendix with thorough drainage, and does not open a large area to infection, with a strong possibility of postoperative hernia. The short incision is a good guarantee against postoperative hernia. I have never seen one develop, even in acute cases, except when drainage had been used for a long time. Under such circumstances the muscles may become adherent to each other in their false position, and, after the tube is removed, a hernia has been known to develop, though very rarely.

Although the long incision may heal by first intention, it is still not free from the danger of postoperative hernia; as one of our prominent surgeons found when he had to submit to an operation for hernia a year and a half after a long incision appendectomy, which had healed by first intention. (*Jour. A. M. A.*, May 20, 1911.)

In spite of the frequent use of the term "ideal" in this paper, we cannot pick and choose our patients, nor they their ailments; and so we find the majority of our practice is not made up of ideal patients, free from all complications. Still



ideal methods, adapted to the varied conditions actually existing, will bring to pass results that more or less nearly approach the ideal. The short incision I believe to be a desideratum for most abdominal operations; but when there is a fortuitous combination of favorable conditions, the results are simply astounding. I cannot better illustrate the possibilities than by alluding to some of my own cases of chronic appendicitis, which, as I have already said, is the disease par excellence for showing the most striking results of the short incision.

Some twenty years ago a lad's disobedience of orders brought me a dim realization of these glowing possibilities, which have since been verified. I had operated upon this boy, aged 13, for chronic appendicitis, with a very short incision. Of course he was told to remain quietly in bed; a day and a half later when the nurse's back was turned, much to her consternation, he hopped out of bed and ran for the bathroom. When she remonstrated with him he said "Why shouldn't I, it don't hurt me a bit"; and although I never have allowed, and never expect to countenance, similar, severe exercise so close upon the heels of a laparotomy, the truth is "it didn't hurt him a bit."

Mr. P., a powerful athlete, some 30 years of age, was brought to me by his friend and family adviser, Dr. Kinicut, also a former gymnasium director. It was a typical case of chronic appendicitis. The incision I made was one inch long; the result ideal. Mr. P. was anxious to get back to work as soon as possible, and took a lively interest in the question of helping himself to the most rapid recovery. On account of his gymnastic training he made an apt pupil, when I explained to him the principle of using those muscles that had not been touched by the operation and keeping quiet the part that had been operated upon. While this is much more difficult in the abdomen than in some other regions of the body, it can be done, especially if the patient, in moving about, keeps the right leg flexed upon the abdomen. This he did, and on the third day showed me with great enthusiasm how he could get out of bed, without assistance, without using the abdominal muscles, and without the slightest pain. On the sixth day he was back at work with all his old time vigor.

The personal equation is a large factor in speedy recovery. For this reason the surgeon can allow a close acquaintance or relative liberties, which could not be granted to a stranger whose temperament he does not so thoroughly understand.

There was no risk, when some years ago Dr. Brown returned to his office four days after I had removed his appendix.

My son was not injured a particle when I acceded to his request to go home with me—dressed and sitting up in the automobile—less than 48 hours after his appendicitis operation, through a one inch incision.

Another member of my family insists that she had previously experienced more pain during a severe sick headache than she did after appendectomy. Her special nurse was called away on the morning following the operation, so she asked, if it was all right to come home; she was brought from an invalid carriage to her own room just 23 hours after leaving it. Two days later she met upon the porch guests who happened to be passing through the city at the time. She was operated upon at her own request before the symptoms had progressed beyond a few days of general lassitude and a slight tenderness of the appendix. Her incision was three-quarters of an inch in length; the appendix was found to contain a good sized concretion, certain to cause trouble sooner or later.

A young niece who came all the way from Texas for an appendectomy, claims she had "the time of her life." She says she cannot remember a single disagreeable moment spent in consequence of the operation. Her experience has been practically duplicated by so many sensible, healthy, young people, that it might well serve as a type.

Still, many members of the profession, who occupy important positions, do not yet realize what can be done through a short incision. This is well illustrated by many actual occurrences, from which I quote two or three:

During the Spanish American war, one of my former patients, an ex-house orderly, made application to enlist. During the physical examination, held in Cleveland, the following conversation occurred between him and the examining surgeon:

Surgeon: What is this little scar on your abdomen?

Applicant: That is where I had my appendix removed.



Surgeon: I am not joking. I ask, what is this little scar on your abdomen?

Applicant: I am telling you the truth. I had my appendix removed in the Cleveland General Hospital by Dr. N. Stone Scott.

Surgeon: I know my business better than that; you never had your appendix removed through that little scratch.

This past summer a similar experience occurred to another patient of mine, who happened to be in Mexico at the time of the revolution, which overthrew the Diaz regime. He was working in the Green Cannanea Mines, one of the largest copper and silver mines in the world; and became quite well acquainted with the surgeon, who has charge of the company hospital, a graduate of a Washington, D. C., medical college. One day my patient told the doctor that his appendix had been removed through a three-quarter inch incision. The doctor expressed his disbelief of the fact and asked to see the scar. He then said "You cannot make me believe that anybody was able to remove your appendix through that cut."

A few weeks ago, one of the leading specialists of this city happened to drop into the operating room just as I was finishing an operation for a 20-pound ovarian cyst, which I had removed through an inch and a half incision. The professor looked at the tumor which filled a large basin, then came and looked at the patient, with the remark: "Well, I would like to know how you did it." When everybody laughed, he said, "No, really I don't see how you did it." One of the house doctors said, "Doctor, that is surgical jugglery."

Dr. Robert T. Morris, before the American Association of Gynaecology and Obstetrics, said of the short incision, "It is the pinnacle of the surgical profession, the highest development of surgery. It is the artistic as represented in abdominal surgery." But it is all of this and more; it is the most utilitarian method for the patient. Not many years since, an operation for appendicitis meant a six-inch incision, and six weeks in bed, with a free cutting of the muscles of the abdomen, and a strong possibility of postoperative hernia. Who does not remember the stir made by Dr. Morris, when he read

his paper on appendicitis, entitled "An Inch and a Half Incision, with a Week and a Half in Bed?" In spite of the prominence of the author, many an article appeared deprecating the rashness of the position. But time has proved the claim to be a very moderate estimate.

603 *Citizens Bldg.*

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### **Surgical Application of Pathological Physiology in Shock.**

By HARRY G. SLOAN, M. D., Cleveland.

While physiologists are not all of the same opinion concerning the explanation of the phenomena of surgical shock, yet we feel that the laboratory has robbed this interesting condition of its mystery. So that we are now able to understand the causative factors and apply the remedy.

No two patients react in the same way to identical stimuli. The one being more susceptible to trauma, while again the other shows the effects of hemorrhage sooner and to a more marked degree. Blood loss predisposes to shock.

The fact of variation in resistance makes each case a separate entity, yet the general laws of pathological physiology apply in all. The principles of treatment are well grounded. The difficulty is in the interpretation of the signs and symptoms of the patient; how disastrous the damage already done, and how well the patient will stand the strain. It is due to Crile and his associates that we are today in possession of these facts.

We have now come to recognize that death in shock is due to a lesion of the central nervous system. In comparing clinically the patient dying from a severe infection and one in the terminal stage of shock, it is well nigh impossible to distinguish the two conditions. In each case the sensorium is blunted; the conjunctival, pupillary and deep tendon reflexes are wanting; respiration is shallow and irregular; the heart action is rapid and very weak, lacking vagus tone entirely. The pathologists formerly told us there was no lesion demonstrable after death to account for the lethal outcome, but on examining the microscopic anatomy of the central nervous system the lesion is found. Grossly, the brain is



found to be softer than normal. There is demonstrable, by the Nissl stain, widespread damage and total destruction of many cell bodies. The same changes are found in shock and death by infection, why then should the clinical picture vary? The only difference is that in shock the chromatin loss occurs mostly in small areas in the cell, while in infection the chromatin loss appears as if due to solution, giving the cell a more washed out appearance.

Hodge and also Dolly in their studies on physical exhaustion have shown that the chromatin content of the cell is a general index to its latent potential energy. In work the chromatin is gradually used up. Hodge studied the chromatin in the nervous system of bees after they had been gathering honey all day. As controls he used bees which had rested all night and were about to leave the hive for the day's labor. In this manner he was able to show conclusively that the chromatin was used up during work. Dolley came to similar conclusions from his study of dogs that were worked in a treadmill over varying periods of time.

Brain cells know only one cycle of activity, whether this arises in physical exertion, through painful sensory stimulation which prolonged causes shock, by fright, or that arising in the ordinary centripetal nervous impulses to the vessels and viscera for running the body functions. The cycle is this, first, the chromatin content increases, then the cell as a whole grows larger, this being the highest stage of activity. A similar phenomenon is seen in the "treppe" of contracting muscle. If pushed beyond this stage the chromatin in the cell gradually disappears; the cell shrinks; the nucleus-plasma relation is distorted and, lastly, if the cell is pushed still farther the nucleolus disappears, the cellular membrane ruptures and the cell dies.

The cells are not all affected similarly. In the same microscopic field with high magnification one may see a cell that is completely destroyed and just next to it one in the stage of greatest activity. In very bad cases in which a cellular differential count is made, 50% of the cells may be found to have progressed to destruction. It is generally conceded that repair may take place if the nucleolus of the cell is intact. This fact is of the utmost importance to us in our treatment of shock. For if the noxious stimuli are abol-

ished and the organism put at rest with a good supply of nourishment coming via the blood, i. e., with sufficient blood pressure, then restitution almost *ad integrum* will take place in time.

The recovery of the nervous system is wonderful, although proportionately more time is necessary than in the case of other tissue. But when we recall that the cells of the central nervous system do not regenerate it is quite past comprehension how the brain recovers when we know that in almost identical cases 10% of the cells were dead. Whether remaining cells take on other function, we are as yet not prepared to say; yet it looks almost possible.

It is well known that after a severe prolonged attack of typhoid a man's intellect is less keen than previous to his illness. Any kind of mental exertion is burdensome. This condition improves gradually until at the expiration of a year we find him with his faculties almost as keen and grasping as ever.

I saw recently a case of fat embolism following a compound fracture of the leg, which has been of especial interest in this regard. During the second day after injury there was a gradual onset of delirium. The next morning the patient was comatose, had a right facial paralysis, loss of deep reflexes, Babinski, and incontinence of dejecta. Over the upper trunk one saw numerous petechiae. Now if one examines the brain of a person dying from fat embolism one will see that it is peppered with pin-head sized reddish spots. These are areas of infarction, and the brain tissue embraced in the areas is necrotic. Nevertheless, this girl, after lying comatose three days started to slowly recover. For two weeks she wandered slightly in her mind. The paralysis had in the meanwhile disappeared. Today, nine months after her illness, she is to all appearances entirely normal and a complete examination of her nervous system reveals no lesion. In the present stage of our knowledge it is impossible to satisfactorily explain her recovery.

The question of low blood pressure in shock is very important because of the inability of the central nervous system to withstand anemia for more than five or six minutes, even when we are dealing with normal cells. This is readily seen by the cell destruction in the brains of dogs resuscitated



after being dead six to seven minutes. Clinically such dogs are unable to see, hear or smell for several weeks; their gait is ataxic and they seem to have lost the appreciation of their surroundings. Cells already damaged by injurious stimuli are much more sensitive to decreased blood supply than normal ones, hence the necessity of maintaining a good blood pressure in shock cases.

The result of a low blood pressure is best appreciated by observing the effect produced on the intellect of a man in profound shock when his pressure is quickly made normal by a transfusion. Consciousness is among the latest of our faculties to develop in evolution, so it is among the first to suffer through anemia. This has been worked out by Stuart and others.

Previous to the transfusion the patient is in a state of mental torpor as it were, semiconscious. He is oblivious to his surroundings. His eyes have lost their look of intelligence. But when the blood pressure has been raised, from where it was at 90, to 130 mm. of Hg. a most striking change is seen. The sparkle of intelligence returns to his eyes, his mind is keen and alert and he may almost become witty in his remarks.

Strychnia was formerly much used in shock but we now know that it is injurious. Halstead had convinced himself twenty years ago by clinical observation that strychnia did no good or was absolutely harmful, but it remained for Crile and his associates to point out the real reason some ten years later. By giving a curarized dog repeated physiological doses of strychnia intravenously there is at first a marked rise in blood pressure lasting from 1 to 1½ hours. This rise is due to central stimulation. After rising, the blood pressure falls to a point lower than at the beginning, and after each succeeding dose, although the blood pressure rises temporarily but for a progressively shorter period, it is noted that it gradually falls nearer the base line. At this stage the dog presents the identical picture of a traumatic shock, both as regards blood pressure and in the reaction to stimulation of the larger nerve trunks. In other words he is completely exhausted. Microscopically the cells of his central nervous system show marked degeneration and destruction. As in the clinical picture so also in the microscopic, it is impossible

to distinguish between traumatic shock and exhaustion from strychnia. As with strychnia, so also with other so-called stimulants; they either do no good or are harmful.

Morphia alone of all our drugs seems to be beneficial, just why we do not know. Possibly it acts by delaying or partially blocking nerve impulses in their passage, e. g., a man's delayed reaction time under morphia. This drug ought to be used in physiological doses of from one-third to one-quarter of a grain (15 to 20 mg.) hypodermically. A dog under morphia and ether anesthesia is 20% harder to shock than when under ether alone. A factor in this result may be the lessened amount of ether required by the dog that has received morphia.

Intravenous saline solution containing adrenalin 1-50,000 gave some promise but when put to the crucial test fails to save. When given too rapidly it is found to be dangerous and even fatal at times, the patient dying of acute cardiac dilatation. The heart muscle, poorly nourished on account of the low blood pressure, is unable to contract under its added load. The pulse suddenly fails, the patient becomes cyanotic, has respiratory distress and dies unless his head is promptly elevated and thorax compressed in order to help the struggling heart empty itself. Then too if given over too long a time and in too great volume, it is excreted into the lumina of the hollow viscera. The diaphragm becomes fixed by the distended viscera and the patient dies from embarrassment of his respiration and edema of the lungs. Saline leaks through the vessel walls and will therefore not sustain blood pressure long. In the milder cases of shock, however, it helps out very well. It increases the volume of the heart's output. The adrenalin is oxidized in 5 or 10 minutes. The effect of saline is fleeting, sometimes dangerous and not to be relied on in profound shock.

Recognizing the inability of intravenous saline to sustain blood pressure Crile next thought of using some external means of compressing the vessels in the lower half of the body. This was best attained by the uniform air pressure of a pneumatic suit enclosing the legs and abdomen. The suit can be inflated at will and by this means it is possible to gain 25 to 60 mm. Hg. pressure, when the vessel tone is low. The suit proved to be of great value in the major opera-



tions about the head and neck when on account of venous oozing, it was desirable to keep the patient in the head-up posture. As the pressure fell during an extensive dissection more and more air could be pumped into the suit to maintain a uniform blood pressure. Like intravenous saline it also failed in the crucial test to save life in shock. The apparatus is expensive and demands constant attention to keep it in repair. Similar results can be obtained by bandaging over large amounts of non-absorbent cotton. The suit was gradually given up when blood transfusion came on the field some five years ago.

The solution of the remedy for low blood pressure came when new blood was introduced into the vessels. Blood does not leak through the vessels, hence when there is a large amount introduced the blood pressure has to stay up. This increase will last several days. It can be demonstrated that when the vessels have completely lost their tone, say by severing the cord high up and maintaining artificial respiration, the pressure can be kept up hours at a time by giving the dog a plethora of new blood. In this case there is hardly any vessel tone, the pressure really arising from overdistention. This is meeting the condition found in shock so that nothing more is to be desired on that score.

For many years it has been recognized by Crile and his associates that nerve impulses arising from trauma were the principal causative factors in shock. To prove this a dog's cord was severed between the sixth and seventh cervical vertebrae and then, to meet the immediate blood pressure fall, he was at once transfused. The dog then had no sensation below the border of his ribs except *via* the vagi and phrenics. He was allowed to remain in this condition for three months, until the tone of the vessels returned to some extent. By peritoneal trauma one can kill the ordinary dog in 3 to 3½ hours but in this dog after four hours of continuous trauma the blood pressure had fallen no more than a few millimeters, or the amount that is constantly present on opening the abdomen and thus releasing a certain amount of intra-abdominal pressure from the great vessels. On examining his brain microscopically only such cell changes were found as would be commensurate after four hours' anesthesia. If in a normal dog one blocks with novocain the nerves sup-

plying the left hind leg, then that leg may be maltreated in any manner one may devise and there will be no change in blood pressure. Whereas if the right, which has not had its nerves blocked, is maltreated in a like manner there will be an immediate rise in blood pressure and an acceleration in respiration. This experiment proves that no impulse has reached the brain from the leg with its nerves blocked, because on stimulation there was no central reflex response.

Crile and Prendergast have shown that nitrous oxid is much less harmful in shock than ether anesthesia. They used 20 dogs. Ten were given nitrous oxid and then subjected to peritoneal trauma and ten were given ether and subjected to similar trauma. The composite charts of each series showed the blood pressure at the end of three hours to be 100 mm. Hg. in the nitrous oxid dogs and only 10 mm. Hg. in the ether dogs. So the drop was 29% in nitrous oxid and 93% in the ether dogs.

In these days of surgery we see shock principally in the grave traumatic cases which are brought into the hospital soon after the accident. The diagnosis is seldom difficult except in internal bleeding from a ruptured viscus or in injuries of the head. Shock appears within the hour of injury and generally progresses *pari passu* with the amount of damage being done the tissues at the site of trauma. Symptoms of shock appearing only several hours after injury strongly suggest internal hemorrhage. If the local symptoms give no light a hemoglobin estimation may be helpful, in shock the hemoglobin is normal. Except for this one difference, provided the local signs and symptoms do not help, it is often well nigh impossible to make a differential diagnosis. Patients with shock are anxious and excited in the first stages; one can see anxiety pictured in their faces. Many are suffering intensely. So our first procedure is to make them as comfortable as possible with morphia. Those in great pain need more, even up to 30 mg. hypodermically. It is best to be generous in dosage except in the aged. If in the surgeon's judgment the patient will stand an immediate operation to trim up the crushed members it is better to do it as the whole affair is gotten over with at once. On the other hand, if he is in doubt it is better to apply antiseptic dressings and treat the shock. Elevating the foot of the bed so the body makes



a 30° angle with the floor is helpful. The value of this simple hydrostatic principle can be appreciated by any one assuming the head-down posture on an operating table and feeling how the blood gravitates to the head and chest. The intact leg and abdomen ought next to be bandaged tightly, applying first rough cotton and raising the leg while bandaging with flannel rolls from the toes up. Let the abdominal pad of cotton be six inches thick and run the bandage up to the costal margin. Keep the patient warm. If these measures do not suffice then intravenous adrenalin-saline solution, 1 to 50,000, may be tried. It is best not to give it faster than 500 c. c. in an hour. If, in spite of these measures, the shock continues to progress we must transfuse the patient in order to save his life.

Arbitrarily if we cannot maintain the pulse at or below 140 we have found it necessary to give new blood. Let your donors be men, as the radial artery is larger. Lanky individuals have fewer anastomosing branches coming off the radial. There is no danger of hemolysis when both donor and recipient are in good health. The possible presence of agglutinins may be disregarded. Novocain 1-400 makes the best local anesthetic. A superficial skin injection for eight cm. over the most prominent portion of the radial is made. Then the deep tissues along the vessels are infiltrated, introducing the needle at right angles to the skin and injecting as the needle goes deeper. There is very little danger of puncturing the vessel. This procedure completes the anesthesia as well as making the subsequent dissection easier. Massaging the area for a few seconds spreads the novocain evenly. It is best to ligate each little branch coming off the radial so as to make the dissection bloodless, and one should use very sharp knives. Do not tie the radical until just before slipping the artery over the vein. It may be necessary to dilate the artery with a mosquito hemostat smeared with vaselin. A vein is selected from the forearm of the recipient just large enough to cuff over the largest canula that the exposed radial will take. The vessels must be handled very gently, using no traction and keeping the anastomosis warm with saline solution. Vein to vein anastomosis is an easier procedure but the blood flow is slower. The pressure in the donor's arm veins may be raised by using just enough compression above the elbow so

as not to cut off the arterial pulse; Bunt's pneumatic tourniquet is admirably suited for this purpose. It is wise to interrupt the blood flow every five minutes for a minute in order not to overtax the recipient's heart; for in case the blood flow is too rapid it may dilate. Acute dilatation is shown by respiratory distress, cyanosis, increase in pulse rate, lessened pulse volume. On percussion the diagnosis is confirmed by finding the cardiac dulness enlarged to the right of the sternum. The remedy is to lower the feet and press several times over the chest to help empty the heart. Continue the blood flow until the recipient's blood pressure is raised 20 to 30 mm. Hg. or the pulse rate falls with an increase in pulse volume, the compression bandages over the lower body having been gradually cut away and the patient's feet lowered. The blood flow must be stopped when the donor shows the first paling of the lips, which is best seen at the junction of the vermilion edge and the skin. It may take 45 minutes' flow to cause this. Much may be done for his comfort by giving  $\frac{1}{4}$  gr. of morphia hypodermically before the operation and by having the table on which he lies well padded. If the patient is in bad condition it is better to transfuse and complete the operation at once. Use tincture of iodine in sterilizing the skin, as it saves time for the surgeon and much discomfort for the patient. Nitrous oxid anesthesia will cause the least damage. Block all tissue to be cut, with novocain 1-400 or cocain 1-1000 just as though one were doing the operation under local anesthesia alone. Block the nerves encountered as far central as possible. If nitrous oxid is not to be had the next best anesthetic in crushes of the legs is spinal anesthesia. After withdrawing 10 c. c. of spinal fluid substitute 10 c. c. of a solution containing 40 mg. of novocain and two grams of granulated sugar. The upper part of the patient's body must be kept elevated  $30^{\circ}$  for an hour after the injection. As yet we have no practical local anesthetic which will prolong the nerve block over an hour or two. A block from local anesthesia lasting for 12 or 24 hours would be very valuable, for by this means we could entirely prevent sensory stimuli from the traumatized area reaching the central nervous system and thus protect our patient to a further extent. In crushes involving the shoulder joint spinal anesthesia is not practicable owing to the danger of respiratory paralysis.



If there is no nitrous oxid at hand it is better to use ether and to block the skin, muscles and nerves as though the patient were awake. Injury in this region causes more shock proportionately than in the extremities. Injuries of the arms rarely cause very marked shock unless the trauma is bilateral or a large amount of blood is lost. They can be managed by blocking the brachial plexus in the neck or axillary fossa. Let the pulse rate and volume be an index in removing the pressure bandages from the lower part of the body: usually 12 to 24 hours is sufficient and gradual removal is desirable. During the postoperative period of retrenchment, the patient will most appreciate having his feet lowered to the level of his head, so let down the foot of the bed first before removing the pressure bandages. Quiet, fresh air and plenty of good nourishing food will complete the convalescence.

In managing shock cases by the principles which we have been discussing there is immediately apparent an enormous drop in mortality. We are now able to save 90% of those who formerly died from crushes of the extremities. Intra-abdominal bleeding after trauma also has a much lessened death rate when the diagnosis is properly made.

Traumatic shock cases occur principally in the large industries, where the men must be strong and tough in order to do the work. Such people are not so susceptible to shock as the highly strung men in the upper walks of life. Death from pure shock sustained from crushed limbs will, in the near future, be the exception in the well organized clinics.

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### Removal of Steel From the Vitreous, With Report of Two Cases.

By WEBB P. CHAMBERLAIN, M. D., Cleveland.

Case 1.—Mr. A., a Norwegian, aged 40, was struck in his right eye by a small piece of steel from the hammer he was using, on Oct. 8, 1908.

Examination about six hours after the injury, showed a punctured wound of the cornea in the central part; the anterior chamber shallow, with a small amount of blood in the lower part; and the anterior capsule of the lens ruptured. With the ophthalmoscope, could be seen an opacity of the lens involving

the entire central portion, with a faint red reflex extending around it. With the eye under atropin, the pupil dilated regularly and the peripheral portion of the lens was seen to be clear; numerous large floating vitreous opacities could be made out, but no definite details of the fundus. Tension of eyeball slightly minus. Vision fingers at one foot.

Diagnosis: As the treatment in such cases depends wholly upon the location of the foreign body, it is of the utmost importance to determine its exact location—whether it remains within the eyeball or has passed entirely through it and lodged in the orbital tissues posteriorly. The patient therefore, was referred to Dr. Hill for localization. The x-ray examination showed the foreign body to be located 17 mm. posterior to the center of the cornea, 8 mm. below the horizontal plane and 3.5 mm. to the nasal side of the vertical plane. Hence the diagnosis of an intra-ocular foreign body was established.

Treatment: First aid consisted in instillation of 25% solution of argyrol, 1% solution of atropin, boracic wash and a bandage. After the localization, the patient was taken to Lakeside Hospital and the Haab magnet used in an effort to draw the steel forward into the anterior chamber. Although numerous trials were made the effort was unsuccessful, but a marked pain reflex was obtained. A scleral incision seemed the most available means of obtaining the steel. But this, to be successful, should be made directly over the location of the foreign body—a point now unknown since the magnet had undoubtedly drawn it forward from its original position. It seemed wise therefore to abandon the effort until another localization could be made. This second localization showed the steel to be at a point 8 mm. posterior to the center of the cornea, 10 mm. below the horizontal plane and 6 mm. to the temporal side of the vertical plane. The patient was taken to Lakeside Hospital a second time and the following method employed in the removal of the foreign body. After the usual sterilization and the use of 4% cocain solution for obtaining anesthesia the conjunctiva was seized with fixation forceps, and an incision 5-7 mm. in length made in the conjunctiva about 2mm. above the location of the foreign body, a flap of conjunctiva dissected free from the underlying sclera and then with a Graefe knife an incision about 5 mm. in length was



made through the sclera. The edges of the wound were very gently retracted and the tip of a medium-sized magnet was inserted into the vitreous. The steel was removed without difficulty, and with very little escape of vitreous. The conjunctival flap was then drawn over the scleral wound and sutured with silk, no attempt being made to suture the sclera.

Result: The wound healed in a week, with no complications as a result of the operation. One month later the vision was reduced to light perception, as a result of the traumatic cataract. About two months after the injury the eye became painful, with a moderate amount of ciliary injection due to a low grade of iridocyclitis. This condition continued several weeks, with a development of a plastic exudate in the pupillary area. Then tension of the eyeball became decidedly minus and inasmuch as the eye was useless so far as function was concerned, it was considered advisable to enucleate it. This was done about three months after the original injury.

Case 2.—Mr. H., an American, aged 22 years, came to my office on December 15, 1910, and gave a history of having been struck in the left eye about 15 minutes previously with a piece of steel from a vise at which he was working. He complained of a slight pain in the eye and a feeling as though a foreign body were in the eye. Examination revealed no foreign body either on the cornea or the conjunctiva, and no abrasion of the cornea was present. Anterior chamber was normal in depth. Ophthalmoscope showed all the media clear, with nothing pathological in the fundus. No evidence of injury present anywhere except near the margin of the upper lid at the junction of the middle and inner thirds, where there was a small punctured wound extending entirely through the lid. No wound of the bulbar conjunctiva or sclera could be found. Tension of eyeball normal. Vision 6-12. The next morning, 18 hours after the injury, the vision in the injured eye was reduced to 1-60. Considerable injection of conjunctiva was present. Pupil was active, and anterior chamber normal in appearance and depth. Ophthalmoscopic examination showed a clear cornea, and no opacities of the lens, but numerous large floating vitreous opacities. No details of the fundus could be made out.

**Diagnosis:** A probable diagnosis of an intra-ocular foreign body was made, and the patient referred to Dr. Hill for examination and localization. The x-ray showed the presence of a very small foreign body, 1.5 mm. by .5 mm. in size, located 9 mm. posterior to the center of the cornea, 1 mm. below the horizontal plane and 10 mm. to the temporal side of the vertical plane, or just behind the ciliary body on the temporal side. It must have entered the eyeball at the point of injury of the upper lid, and passed through the vitreous body to the opposite side of the eye. Its small size, and its course across the eyeball posterior to the lens and ciliary body, accounted for the lack of early symptoms.

**Treatment:** After usual first aid treatment, patient was taken to Lakeside Hospital for removal of the steel. In this case no attempt was made with the Haab magnet to draw it forward into the anterior chamber, but the scleral incision was resorted to at once in the manner described in Case 1. The steel was removed with comparative ease, and the wound closed with the conjunctival flap, no scleral sutures being used.

**Result:** Patient made an uneventful recovery. Atropin was continued in the eye till all reaction had subsided and iodids were given internally to promote absorption of the vitreous opacities. At the end of one month the eye was quiet. The wound had healed with scarcely a trace of the incision. The vitreous opacities were much less dense. Vision 6-30. At the end of two months no definite opacities could be seen, but a fine haziness of the vitreous slightly obscured the view of the fundus. Vision 6-9.

Such cases as the two reported are of common occurrence in a manufacturing center like Cleveland. Their treatment is a subject upon which there is a general unanimity of opinion; if the foreign body is within the eyeball, it should be removed as soon as possible, and with as little damage as possible to the already injured eye. For whatever may be the correct theory of the production of sympathetic ophthalmia, its actual occurrence is a fact which is universally conceded, and the only prophylactic measure is the removal of the foreign body.

The method of removal varies according to the conditions present in the individual case. If the patient is seen very



soon after the injury, and the foreign body is found to be in the anterior chamber or lens, it may often be successfully removed through the wound made by its entrance; or if this be not practical, through a corneal incision. But if it is in the vitreous, I believe the most successful method of removal in the majority of cases is through a scleral incision made as near as possible to the location of the foreign body, without making any attempt to draw it forward into the anterior chamber.

The principal dangers of the scleral incision are loss of vitreous, detachment of the retina and infection, each of which is materially lessened by making a liberal sized incision—not less than 5 mm. in length. With such an incision there is less **manipulation** necessary in the use of the magnet, and it is the prolonged manipulation that invites the above mentioned disasters.

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### Medical Aspects Of Breast Tumors.

By WM. D. FULLERTON, Ph. B., M. D., Cleveland.

In view of the fact that at present there is no cure for malignant tumors of the breast, unless it be early and complete excision, and that if a specific therapeutic or serum-cure is discovered, it will almost certainly be most effective early in the course of the disease, it is most important that he who sees the condition first recognize it as such, and direct the unfortunate host to one competent to take the best care of her—at present, the surgeon.

The symptoms which usually call the patient's attention to tumors of the breast are pain, tumor and asymmetry, for which she consults her family physician. More frequently though, the condition may be diagnosed early if the family physician constantly bears the condition in mind when making physical examinations: in this way many cases would be sent to the surgeon for early operation, which would otherwise probably be inoperable when first noticed by the patient herself.

Much might be done towards earlier diagnosis of these tumors by making them the subject of a part of an annual course of public lectures on personal, public and domestic

hygiene, to be given free by leading physicians and surgeons in the community.

To recognise and diagnose all malignant tumors of the breast is probably demanding too much of the family physician, but he can, by bearing in mind the condition and some of the following signs and symptoms, diagnose many of them, and should at once refer to the surgeon any condition that suggests malignancy, or any condition in which there is the slightest doubt as to the correct diagnosis. He must not be too confident in his ability in such diagnosis for it forms one of the most difficult even for expert surgeons today.

By religiously following these suggestions, the following lapses of time can be reduced to a great extent: First, the period the patient is unaware of the trouble; second, the period the patient waits to consult her physician; and third, the period the physician waits to act.

Signs and Symptoms of Malignant Tumors of the Breast.

The presence of a tumor: Always to be carefully investigated.

Age: Most important, as malignant growths rarely appear before 25 years of age and are most common between 40 and 50. There may be a diffuse virginal hypertrophy at puberty or a diffuse gravid hypertrophy at lactation. There is also a menopause hypertrophy. Infants' breasts are seldom the seat of disease.

How long noticed: If for more than one year without material increase probably not malignant, though this does not always hold, and should never be considered if other signs of malignancy are present.

Dimpling or puckering of the skin: Suggestive of malignancy.

Retraction of the nipple: Quite characteristic if not due to congenital inversion or a former mastitis, types which can be distinguished.

Following a mastitis: Occasionally. A mastitis during lactation should either get better soon or form an abscess. If not, tuberculosis or cancer is to be suspected. Cancer follows much more often after mastitis than after trauma. Lactation mastitis should leave no induration, if so, it should be explored at once.



Lactation hypertrophies: Explore all induration occurring at this time, of which those of the first four months are usually pyogenic. After four months they are suggestive of malignancy.

Unilateral hypertrophy: If persistent almost diagnostic of some tumor there. At puberty we may have a unilateral hypertrophy for a while.

In tuberculous patients: Tuberculosis of the breast most often occurs between 25 and 35 years of age, and bears no relation to trauma or lactation.

Color of the skin: A brown to bluish tinge may be suggestive, the latter of advanced malignant cases or trauma.

Appearance of skin: "Pig skin" is quite characteristic, being peculiarly retracted at the hair follicles, thicker, rougher, of a queer light brown color and glossy, if tense over a large growth.

Discharge: May be present in benign or malignant cases and if bloody from the nipples indicates a papillomatous cyst, which may become malignant. If milky, it is probably of an inflammatory nature.

Ulceration and fungus formation: Point to malignancy.

Glandular enlargement: Axillary and supraclavicular, very suggestive with other symptoms and usually significant of advanced and practically hopeless cases.

Skin metastases: If present, diagnostic of an inoperable case.

Relation to trauma: Unimportant as only 8% give a definite history of trauma, but few women reach a cancer age who can not recall some breast trauma.

Areola: May be smaller on diseased breast, due to contraction by the growth.

In what quadrant: Slightly more frequent in upper outer quadrant, next in nipple zone, lower outer, inner lower, and inner upper quadrants, in the order named.

Pain: Not a common early symptom.

Atrophy of subcutaneous fat: Very suggestive of malignancy.

Rapidity of growth: Usually marked.

Tumor if present: If hard and irregular in outline, circumscribed and surrounding tissues infiltrated, practically diagnostic of cancer. If fat is thick and palpation impossible, exploration at once by one ready to do a complete operation if necessary.

Crepitation: Sometimes felt.

Elasticity and crepitation: May be present in benign or malignant growths.

Fixation to chest wall: Very suggestive of malignancy.

Attachment of skin to underlying tissues: Very suggestive of malignancy.

Reappearance: If tumor comes and goes it is probably not malignant.

Drawing on dislocation: By raising the arm over the head the contour of breast may be disturbed, if so, very suggestive of malignancy.

Local edema: Of skin and subcutaneous fat, indicative of malignant disease.

Cachexia: Also change of general health seldom seen early and of little importance.

Shortening of fibrous trabeculae: Suggestive of malignancy. "Best determined, especially when shortening of trabeculae from tumor to skin is very slight, by making both breasts take the widest possible excursion on the chest wall under the skin. The very faintest difference of the two sides may be sufficient for a diagnosis. There may be no sign but the faintest suggestion of pull, which, when the faintest possible, is elicited by dislocation in one direction only." (Halsted.)

Enlargement: Symmetrical of both breasts, usually a benign growth; of one breast, always to be carefully investigated.

Elevation: If one breast or nipple is higher on the chest wall than the other, investigate it carefully. The diseased one is often the higher, due to contraction of the growth.

Multiplicity: Multiple tumors in women under 25 are usually benign, hence do not operate, but in older women always investigate.

Chronic inflammation: Very difficult to differentiate clinically and microscopically from cancer.



Encapsulation: A palpable mass may feel circumscribed though not encapsulated, which points to malignancy, though malignant tumors may be encapsulated.

Granular inflammation of nipple: "Paget's disease" with parchment-like appearance of the skin is malignant and should be treated as such.

All single tumors should be excised from the female breast and all multiple tumors in women over 25. The diagnosis can then be confirmed and if malignant the complete operation done; if not, the patient's mind is at ease, there is no chance of malignant change occurring later in the growth and no harm has been done.

The statistics of the Johns Hopkins Hospital show that 40% of the cases of breast cancer operated upon are alive and well three years after operation.

When cancer was suspected and an exploratory operation done to aid in the diagnosis, 80% of the cases which were malignant were found to be alive and well after three years.

These figures show quite definitely the advantage to the patient of an early diagnosis, even if an exploratory operation be necessary to confirm or disprove the probable diagnosis.

# The Cleveland Medical Journal

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## EDITORIAL

### Coronarius, the Crowner.

Between *coronarius*, crowner and coroner, the etymological kinship is so close as to be quite apparent. More difficult is the tracing of the development of the duties exercised by the coroner today in Ohio from those of the crowner of old. The exact following of this development we reserve for a future painstaking research and for the preparation of a thesis for the medicolegal doctorate. Until we shall have investigated the matter with the care and accuracy of a Carlyle and shall have set down our findings with the detail and minuteness of a Herr Teufelsdröck we may permit surmise to take the place of scientific exactness. It was the function of the



old-time crowner to look after the private interests of the crown. If he was a faithful servitor we may suppose that he considered it his duty not only to conserve the property of the crown but also to increase it. We may surmise that he obtained a certain amount of increase by seizing for his master all such valuables of which the unidentified and violently slain died possessed. With the substitution of an impersonal and democratic government for a personal and crowned ruler we may suppose that many of the functions of the crowner became obsolete and that the nature of the violence which caused death became more important than such worldly baubles as the deceased might have had upon his person.

The question arises whether it would not be well for the functional obsolescence which overtook the ancient crowner to engulf also the modern coroner. Certainly the coroner, as he operates under the statutes of Ohio, is a most anachronistic official. He is neither fish nor fowl—he is part judge but not judge enough, he is part sheriff but not sheriff enough, he is part prosecutor but not prosecutor enough, and because he must determine the nature of the violence which caused death he must have considerable knowledge other than a legal kind before he can perform his pseudo-legal functions. What he should have is a legal knowledge of criminal procedure, a profound intelligence of matters pathological, an unfathomable well of chemical information, an expert's acquaintance with gun-shot and other wounds—and what he usually has is a plurality of free, equal and unpurchasable votes.

It is not to be thought that we are animadverting upon the coroner himself. Cuyahoga county has been fortunate in having had, from time to time, as Coroner and as Deputy Coroner men who have given better service than the office deserved. The fault lies not with the man but with the office. The latter should be reformed and its duties revised. How best to reform and to revise—whether the duties shall be curtailed or increased, whether they shall be amalgamated with those of some other legal officer who shall have power to call upon experts for medical and chemical advice, whether a commission of several men would be better than any single individual are matters which require much thought. A fair share of that thought should come from the medical profes-

sion. Change is necessary. The Academy of Medicine might well speak for the profession in suggesting the nature of such changes in the duties of the coroner as relate to technical medical matters.

O. T. S.

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### **International and Interstate Protection of Water Supplies.**

With the great increase of population in the United States, and with the general tendency towards concentration in the cities, the problem of water supplies for domestic purposes has become daily more acute. It is obvious of course that the questions of sewage disposal and of water supply cannot be divorced in the United States so long as it is the rule to take the water from surface collections of one sort or another. By far the greatest number of the large communities with central supply take the water either from natural or artificial lakes or from rivers, and unfortunately it is also true that by far the greatest number of these same communities discharge their untreated sewage into natural or artificial lakes or into rivers. Leaving aside the cities which lie on the salt water and whose sewage therefore does not affect drinking water, it is no exaggeration to say that the majority of dwellers inland drink more or less diluted sewage, with or without treatment.

One of the factors interfering with prevention of these conditions is the lack of understanding of the essential nature of the organisms causing intestinal diseases. If it was brought to the knowledge of a community that another community upstream was pouring a solution of arsenic into the water, there would at once be an upheaval, whereas when it is brought to the knowledge of the same community that its neighbors are pouring sewage into the water, with a possible typhoid content they are content to feel that something ought to be done about it, and to let it go at that. Moreover there is usually the appreciation that their own community is doing the same thing and that if they were to endeavor to force the towns above to treat their sewage in some way they themselves might be put to expense. It is easy to see how they could feel that exposure to typhoid and cholera is far preferable to such a contingency. This attitude interferes very



seriously with advances along the lines of water purification, even within the boundaries of a single State, and it is evident that when the water supply in question lies as a boundary between two States, or comes from one into the other, the problem becomes more and more complicated. While the Interstate Commerce Commission can deal with such matters as the sale in one State of contaminated, infected or adulterated material produced in another, it cannot apparently act where one community pollutes water which is subsequently taken and used for domestic purposes by a community in another State. It is a modification of the old axiom of "caveat emptor," and the attitude taken is that the user should purify for himself. On the other hand, granting that it is necessary to use surface water supplies, it would appear obvious that it is not proper for any community to be obliged to drink sewage, no matter how disinfected and purified.

The problem is not a new one and has been met in some parts of Europe by the formation of Commissions or River Boards, acting either under special legislation or under suitable existing laws. In this country the need has only become evident of late years and the formation of the Ohio River Commission and the Lake Michigan Commission in an effort to meet a felt want. It appears probable that other watersheds involving more than one State will be organized in the same way and that legislative and other measures will admit of a reduction of the pollution to the lowest possible terms. Where the water supply lies as a boundary between two countries with different governments the situation becomes even more complex, as in all international questions. For that reason it has been considered necessary to form an international association on the general lines of previously noted commissions, to get joint action on matters concerning the boundary waters. In connection with the International Municipal Congress held recently at Chicago, representatives from Canada and the United States formed the "Great Lakes Basin Pure Water Association," with the intention of obtaining combined action of the two countries to prevent pollution of the lakes themselves and of the watersheds on either side. One of the definite dangers is from the shipping, and international action will be necessary to gain any adequate control. Uniformity of laws and their enforcement and uniformity of popular opinion are

two of the great means for advancement. It is of course clear that each community must meet its own problems in the most suitable way and there is no desire to dictate anything beyond the prevention of pollution which may endanger that particular community or another. It is hoped that the States and municipalities included in this basin will meet the efforts of the new association with the heartiest cooperation, especially since all must share in the benefits following success.

R. G. P.

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### Is Popularization of Science Advisable?

The present day tendency is to exploit in the press and the magazines all matters of general scientific interest in such a way as to allow the general public to believe it understands them. On the other hand it is a question whether the old saying of Pope to the effect of the danger of a little knowledge does not still hold good. One may see an illustration in the attitude towards any new thing in the development of preventive medicine. Those who have no inkling of knowledge of the matter read accounts from various sources and form opinions which they are entirely willing to offer without charge to any who will listen to them, not excepting the ever ready reporter. In the main, however, these opinions are expressed in a tentative and rather questioning way, while in the case of those who have not only read of the matter but who have some more or less distant connection with the administration of the process the development of authority is much greater. Because a man for instance is a chemist, or a civil engineer, or connected in a business capacity with some institution dealing with matters of scientific medicine, he does not hesitate to rush in with opinions based on a very complete ignorance of actual conditions, and to draw conclusions from these same baseless opinions. One may remember that the same poet continues to the effect that shallow draughts intoxicate the brain, and in light of the fact that the age is so much one of specialization that it is impossible to be accurate in a wide range of activities without special education, the ultimate end of these unqualified experts seems at least problematical, for it is quite impossible that they should be able to acquire sufficiently large drinks of knowledge to sober them



again. The main danger is of course in that the mass of the people have no opportunity for personal investigation in these matters and the authority which appears to hang on the words of an official even though the appointment be a purely political one leads them to believe the wildest statements. It would be a shock to many to be compared with the Italian peasantry who have been mobbing the physicians combatting cholera, but the reason for their action is much the same as that of those in this country who oppose matters already proved elsewhere to be conducive to the general health of the community.

The present example of this is in the agitation in Cleveland in connection with the water supply. To the world at large certain facts have been proved in a most complete manner, namely that one of the main methods of transfer of typhoid and other intestinal diseases is impure water, that when the source of the water cannot be adequately protected the supply must be treated in some way, that when measures leading to the proper filtration of the supply or the absolute protection of the watershed are impossible of completion within a term of years there must be something done at once, and that means are available for this type of protection.

Yet in spite of all this it seems difficult for the people to appreciate that the essentials of protection of water supplies and the purification of doubtful waters have long passed the experimental stage, and that the opinion of those who have made these questions a special study and who have drunk deep enough to recover from their early intoxication, should be taken in preference to that of those who are still in the first stage. There is no doubt that a proper understanding of the principles of prevention of disease should be generally distributed, but some precautions should also be taken to prevent the acceptance of the opinions of those whose lack of experience and of accurate information scarcely qualifies them for the post of mentor.

R. G. P.

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### Ohio State Board Examinations.

A compilation of the grades attained at the June, 1911, Ohio State Board examination shows the following for Ohio medical schools:

## Regular Schools

Rank	College	Average Grade	Number Passed	Number Failed	Percent Failures
1	Western Reserve University.	84.13%	13	0	0
2	Starling-Ohio .....	81.76%	50	1	2
3	Ohio Wesleyan University...	81.67%	22	0	0
4	Ohio-Miami .....	81.12%	32	1	3
5	Toledo .....	81.05%	8	0	0

## Irregular Schools

6	Cleveland-Pulte .....	78.34%	7	1	12½
7	Eclectic .....	76.68%	8	3	27

In the group of 17 students with a grade of 85% or over, Western Reserve University and Ohio Wesleyan University together (having 35 students taking the examination) had eight men, or 28.8% of all. All the other Ohio colleges (having 111 students taking the examination) had eight men, or 7.3% of all, in this group. No graduate of the last nine classes of Western Reserve University has failed before any State Board Examination.

## Department of Therapeutics.

Conducted by J. B. McGEE, M. D.

**Colon Bacillus:** In the *International Clinics* (Vol. II, Series XXI) Fenton B. Turk considers the diseases produced by *Bacillus coli communis* in the intestines. It is assumed that because the colon bacillus is a "natural habitat" of the intestines, it is not only non-virulent but beneficial to the host, and this is still maintained by many. The large number of accumulated facts, however, in which it has been proved to be the only organism causing pathologic conditions, and above all the research work with colon bacilli, forces us to recognize their virulency. The most successful treatment of the diseases caused by this bacillus is effected by correction of dietetic errors, the restoration of function of the organs of nutrition, and the establishment of immunity in the individual. The treatment must be carefully administered under bacteriological control. Neuman concludes, as is generally known, that *B. coli* appears to be able to set up almost any enteric malady, if its virulency is sufficiently pronounced. Diseases that would pass clinically for typhoid, cholera and dysentery may have no other source. As to treatment, aside from well recognized methods of systemic or general treatment, it is desirable in addition to utilize what we already know of a more direct and specific therapeutic character. To transform each individual from an imperfect to as near perfect a colon bacillus carrier as is possible is the ideal condition to be obtained, which though incomplete is the seemingly normal method. In many cases in which the treatment by mechanical and physical means, and vaccine and serum treatment are all negative in their results, it has been found that the use of thyroid substance will promptly increase the antibodies against the colon bacillus. In this class of cases there may not be any marked evidence of myxedema, but upon administration of the thyroid the colon bacilli



lose their virulency and all the associated symptoms promptly disappear. It is one of the most powerful agents we have for the correction of this disturbance, and the control of the toxic influence of the colon bacillus. The dose should be one to three grains three times a day, beginning with small doses and watching the effect. There is nothing more disappointing in the treatment of this condition than the use of drugs. Laxatives may aid by expelling material from the bowel, but do not affect the cause, and antiseptics of all kinds are practically of no value in these conditions.

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**Pneumonia:** In the July number of the *Therapeutic Gazette*, Edward H. Goodman and R. L. Pitman treat of the importance in pneumonia of observing the ratio of blood pressure to pulse rate as a valuable index to therapeutic measures, and in this opinion the authors of the paper coincide. They do not feel that a fatal result always accompanies blood pressure higher than pulse rate, nor do they regard a blood pressure higher than pulse rate as a prophecy of ultimate recovery. One point which they emphasize is that in cases of arteriosclerosis or of nephritis, or in any condition usually associated with an increase in blood pressure, the pneumonia patient may have a higher pressure than normal, yet for that individual the pressure is relatively low. Prognostically, they believe that in the absence of a condition producing, *sui generis*, hypertension, if the pressure remains above the pulse rate a favorable outcome is to be expected and there will be little need for stimulation. On the other hand, a pressure lower than the pulse rate, while not to be regarded from a fatalistic viewpoint, nevertheless offers a relatively accurate indication for the administration of cardiac stimulants. In cases of pneumonia complicated by nephritis and by arteriosclerosis, the pressure may be above normal and quite above the pulse rate, and yet the patient may be, for him, on the very verge of a vasomotor collapse, and may require an active stimulation. They believe by observing the ratio of blood pressure to pulse rate, a relatively accurate indication is given for the use of stimulants. One should not be satisfied with daily estimations alone, but blood pressure should be taken with the same frequency as temperature, pulse rate and respiration and should be as carefully charted.

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**Magnesium Sulphate:** Algernon Brashear Jackson in the *New York Medical Journal* for June 24, reports the result of injection of magnesium sulphate for acute articular rheumatism in five cases of varying types. He has also treated a number of other cases and the results have been excellent. He is inclined to give the salicylates a chance first, but when they fail to give results he employs the magnesium sulphate treatment. The only reason he has for doing this is that many patients, especially nervous women, will object to the injections until after other measures fail. No pain, however, follows the injection because the drug acts as a local anesthetic. He has not yet noted any unfavorable signs from its use, despite the fact that we are told the magnesium sulphate injected into the circulation is a cardiac and a respiratory depressant. The technic is simple, he employs an all glass Luer syringe of five c. c. capacity, observing all aseptic precautions, and selecting as the point of injection any muscle that is handy. At present he is using a 25% sterilized solution and injecting 4 c. c. into adults. Up to this time he has treated no children but he should use it without hesitancy in the proportion of 1 c. c. of the 25% solution to each 25 pounds of the body weight. The discovery of this active therapeutic agent in rheumatism was the result of a last resort. He usually gives a daily injection for three or four days and sometimes follows with two or three at intervals of every other day. In one case he used, in addition

to the injections, a local application of a saturated solution of magnesium sulphate to the inflamed joints, and it was given internally to overcome a very obstinate constipation. In some cases the injections produced active purgation, in others they had apparently no effect. In only one book on therapeutics (White and Wilcox) did he find anything on this subject: this stating that hypodermic injections of three grains of magnesium sulphate had been employed to produce evacuation of the bowels. This is a preliminary report and he hopes to be able to present later a more careful study of the drug and its uses in rheumatism, amygdalitis and local inflammations.

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**Digitalis:** In the August number of the *American Journal of the Medical Sciences* Harold C. Bailey writes concerning the toxication of digitalis on the heart, his object being to discuss the toxic effects, to show the frequency of these effects in ordinary practice, and to urge that the administration of the drug be more carefully controlled. In a series of 90 cases under treatment with digitalis or digitalis bodies and carefully noted, about 25% showed some form of toxic action. The administration of digitalis to a patient whose heart is exhausted by myocardial and valvular disease is a proceeding requiring great care. The active principles in the preparation used vary in amount and when given by the mouth we are unable to say, even under normal conditions, how quickly absorption will occur how much will be absorbed; and how much rendered inert by fixation, destruction or removal by peristalsis. Even when a definite quantity of one of the glucosids, as digitoxin, is given, the obstacles to its used by the mouth still remain, and it is well known that this principle is not suitable for subcutaneous or intramuscular injection. Our great need is for a readily absorbable principle having the digitalis action, for oral administration must continue for the present to be the method used in general practice, although crystalline gratus strophanthin, or ouabain as it should be called, nearly fulfils the conditions when it is used by intravenous or intramuscular injection. The vasoconstrictor action of the therapeutic dose of digitalis is probably slight, but some rise in blood pressure follows the use of the drug, especially when the pressure is low. This rise is chiefly due to increase in the force of the cardiac contractions. Digitalis is said to constrict the coronaries, but as Hatcher has said, it is impossible to believe that the food supply is lessened at the time the amount of work is greatly increased. Probably no considerable amount of constriction occurs with ordinary doses. He concludes as follows: (1) Toxic effects of digitalis and related bodies may be divided into three periods with regard to their occurrence and severity. These toxic symptoms may usually be discovered in their earliest stages by careful and frequent sphygmographic observations upon (a) period of vagus stimulation, (b) period of depression of conductivity with marked vagus action, and (c) period of marked muscular irritability with depression of contractility. (2) Digitalis heart block may be differentiated from ordinary heart block, and from vagus influence as a causative factor. (3) Muscular irritability may be the first symptom observed, the other stages being short in duration and easily overlooked. (4) Irritability from digitalis must be differentiated from the progress of the disease by careful observations of the different functions as evidenced by combined tracings. (5) With therapeutic doses the rise of blood pressure due to vasoconstriction is so slight that it may be disregarded, but with toxic doses it becomes of extreme importance. (6) Cumulation occurs with digitalis and may last for a considerable period. (7) Vomiting is probably a central effect of digitalis, and is a sign that absorption is occurring. (8) Pulsus alternans may be relieved by digitalis in some cases



**Nickel Sulphate:** In the *Monthly Cyclopaedia* for June, Louis Kolipniski considers the use of nickel sulphate in medicine, believing that sufficient proof has made it evident that nickel salts are useful in practical medicine and that they may aid or supplant other remedies now in vogue, yielding equal or better results. In his treatment of a variety of diseases the sulphate was the salt of nickel chosen, and good results were obtained, confirming in some instances the statements of former practitioners, in others modifying or amplifying them. The dose of nickel sulphate is one grain, after meals or food, three or four times a day. One-half grain will often achieve good therapeutic action, but the larger dose is surer and as well borne. Two to five grains are prone to cause severe nausea and vomiting, and these quantities must be considered too large for practical use. The forms of administering are pill, tablet, or solution. Locally used in one or two percent solution he found it of great value in the commoner forms of parasitic skin diseases. Alopecia areata showed a faint growth of very fine new hair at the end of a week, and at the end of six weeks normal scalp and hair covering. It is also of considerable benefit when given internally in some other skin diseases, as chronic urticaria and in chronic psoriasis instead of arsenic. In chorea a cure can be established in three or four weeks. The patient's nutrition is much improved and the figure becomes more robust. Nickel seems to be fully the equal of arsenic here, and has none of the disagreeable disturbances of mild arsenicalism, as edema, headache, nausea or vomiting. In chronic neuralgia of the face, tic douloureux, it has been successfully given, and in migraine, of whatever form, it is one of the best and most efficient means of treatment. In epilepsy the sulphate has not been found curative or preventive of seizures, but assumed a more important place in this disease in cases in which it is associated with inaction or perversion of the genital sphere and organs. It was noted that nickel is of important service in the treatment of the emotional and psychic weakness, the vague ideation and instability of character and action met with in celibates of both sexes, these being classed as neurasthenics.

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**The Heart in Children:** Le Grand Kerr in the *Medical Review of Reviews* for June state that it is a fact that is not always appreciated, that the action of the adult heart is not in any way a fair indicator of what may occur in earlier life. The ordinary adult standards cannot be made to reasonably apply to similar conditions occurring during childhood. Without enumerating all of these factors, there are three essential clinical characteristics of the circulating apparatus of children which are prominent: (1) a diminished blood pressure, (2) a rapid circulation, and (3) a rapid pulse, without other signs. In neglecting to appreciate the influence of influenza upon the child's heart, we may be led to prescribe such remedies as are depressing to the heart's action, or which disturb its function and therefore we are not alone withholding the support to the organ which it should receive, but we may be unconsciously damaging the organ. The toxemia of a lobar pneumonia is not severe, and its effect upon the child's heart is not marked. There are many contributing factors which render the child's heart less susceptible to serious damage during a lobar pneumonia than is the heart of the adult, chief of which are the limited course of the disease, the still unenfeebled condition of the heart and its proportionally strong right ventricular contraction. He summarizes: (1) In the very large majority of instances the danger to the heart in children, who are victims of pneumonia or of influenza, is not the same as in adult life, and cannot be judged by the adult standards. (2) The anatomic and physiologic peculiarities of the child's circulatory apparatus markedly influence the clinical manifestations, irrespective of other contributory factors. (3) As

the incidence of cardiac involvement is very early in influenza and is probably myocardial rather than neurotic, the time to begin treatment of the heart is as soon as the diagnosis of influenza has been made. (4) In lobar pneumonia, it is unusual for the heart to demand any active treatment, either before or following the crisis. (5) The peculiarities of the disease, and the patient, in bronchopneumonia place an unusual and prolonged strain upon the heart, and make the demand for active treatment in this disease to be early, prolonged and judicious. (6) Coughing may be as important an element as increased blood pressure in the production of cardiac hypertrophy.

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**Nephritis:** A. L. Benedict in *Merck's Archives* for June treats of the management of nephritis of moderate grade. Diet is an important consideration in renal cases, and the family physician should remember that every one of his clientele that is eating and drinking injudiciously, especially in the way of taking putrescible food, high in proteins and purins, is liable to become a renal case. The general rule has been stated that the treatment of nephritis should be aimed around, not at, the kidneys. It should be confessed that there are some exceptions to this rule. In spite of the somewhat different embryonal nature of the renal epithelium, there is no obvious theoretic reason why it should not be influenced favorably as well as unfavorably by chemical substances excreted in the urine, just as other epithelial lined organs may be inflamed or healed by substances in contact with them. Various balsamic substances of accepted value for the lungs and alimentary canal may be employed. Menthol, salicylates, borax, etc., have likewise had more or less vogue. Intensified renal congestion may be produced so that the drugs should be carefully watched and frequently changed. He has never been able to satisfy himself of definite favorable results from any of these. On the other hand hydrastis, or its glucosid, or the derivative of the latter, as well as iron in the form of Basham's mixture do seem to diminish albumin, even to cause its entire disappearance. Whether they are positively curative is another question. Recent cases of nephritis may recover, with or without their use. Established cases rarely do so. In one case for a month, and in another for a week or ten days, therapy by renal extract was employed, but was discontinued as the albuminuria became steadily more marked. The older remedies were then employed with the disappearance of the albumin. There is no reason why renal extract should benefit nephritis since the kidneys are excretory organs, and furnish nothing to the body that can be supplied extrinsically, any more than we can have an efficient extract of lungs to carry on the corresponding emunctory functions.

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**Stokes-Adams Disease:** In the *Medical Record* for June, James C. Johnston considers Adams-Stokes syndrome, Adams-Stokes disease or heart-block, believed to be dependent on pathological changes in the auriculoventricular bundle, and characterized by a permanent or recurrent bradycardia, to which may be added dizziness, syncope, apoplectiform attacks, or epileptoid seizures. Since heart-block is dependent upon the disturbance of transmission of the exciting energy from the ganglia to the ventricles, it appears that an agent that would paralyze the inhibitory terminal filaments, would permit of the increased stimulation being crowded over the point of resistance, which is the bundle of His, and into the ventricles. Atropin does this to a great extent, as stated by Hare in the report of a case in which the ratio was 14 to 40 and which under atropin became 70 to 70. He disparages the use of digitalis believing it fatal in severe cases, and only to be used in very mild and imperfect cases of heart-block. Caffein increases the



cardiac contraction and duration of the systole, shortening the diastole, and consequently is not indicated if the disease is at all far advanced. In early stages strychnin may be thought of, as it stimulates the motor ganglia, but as it also acts upon the medullary vasomotor center, and causes a rise in the resistance to the arterial flow by a contraction of the blood vessels, and lengthens the diastole, it, like caffein, becomes of secondary value to digitalis, and digitalis is less remedial than atropin.

### Book Reviews.

The Practical Medicine Series. Volume IV. Gynecology. Edited by Emilius C. Dudley, A. M., M. D., Professor of Gynecology, Northwestern University Medical School, etc., and C. von Bachelie, M. S., M. D., Assistant Professor of Obstetrics, Chicago Polyclinic and College of Physicians and Surgeons, etc. Series 1911. The Year Book Publishers, Chicago, Ill.

For the busy practitioner, who cannot, himself, follow all the literature, it would be hard to find a better abstract of the year's progress in gynecology than is offered in this book. In looking over the volume, one is impressed with the fact that the year has produced no very new or wonderful developments in gynecology. Probably the operations by the vaginal route, and the so-called "endopelvoscopy" are as novel as anything mentioned; but the danger of peritoneal infections makes such operations of questionable value. As usual, the bulk of discussion falls upon "tumors" and that heading covers 64 pages, the largest division in the book. The technic in cancer operations shows no marked advance over that of Wertheim. An animated debate still goes on as to the best method of holding a uterus forward by operation. More round ligament procedures are suggested. The multitude of such operations leads one to think that none of them is proving more satisfactory than does the classic ventral suspension of Kelly. By the way, on page 167, Howard A. Kelly's name is spelled "Kelley." A few other typographical errors are found here and there. For example, on page 116, the sense requires us to read, "vaginal wall," for "abdominal wall" (line 32). Again, on page 201, we find "atuer" for "outer."

J. T. S., JR.

Hieronimus Fracastor's Syphilis. A translation in prose from the original Latin. The Philmar Company, St. Louis, Miss., 1911.

According to the translation from this Latin poem, written four centuries ago, the word Syphilis had its origin from the first victim who, according to the poet, was a shepherd named Syphilus—the first to profane the sacred altars of Sirius—"A hideous leprosy covers his body, fearful pains torture his limbs and banish sleep from his eyes. Then this terrible disease—known since then among us by the name of Syphilis—does not take long to spread in our entire nation, not even sparing our King himself." It is interesting to compare with our knowledge of today the graphic descriptions of the symptomatology of the disease and also the treatment by mercury.

The author then describes the treatment in detail. "Patients—a truce to the disgust which may be caused by this remedy—for if it is disgusting, the disease is still more so; besides, your cure is at this price. So without hesitation spread this mixture on your body and cover with it your entire skin, with the exception of the head and the precordial region. Then carefully wrap yourself in wool and tow; then get into bed, load yourself with bed covering and thus await until a sweat bathes your limbs with an impure dew. Ten days in succession renew this treatment, for ten entire days you are to undergo this cruel trial whose beneficial effect will not cause you to wait. As a matter of fact, very soon an infallible presage will announce to you the hour of your freedom.

Very soon you will feel the ferments of the disease dissolve themselves in your mouth in a disgusting flow of saliva and you will see the virus, even the virus evacuate itself at your feet in rivers of saliva." Severe salivation evidently was considered necessary for a cure. If the beneficial effects of mercury excited such ecstasies to what heights would the author have soared could he have witnessed the effects in some cases of Salvarsan. To those who are interested in this particular phase of the subject, the book will prove interesting. W. E. L.

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Health Hints and Health Talks. By E. R. Pritchard, Secretary Chicago Department of Health. The Reilly and Britton Co., Chicago. Price 50 cents.

This little book is a compilation of a series of notes published in the Chicago papers and in other dailies and weeklies. They are tersely expressed, and cover a wide range of sanitary subjects. It can be seen that many of them were brought out to meet a special need, and it is possible that they lose a little force from the mere fact of being in a collection, as books of humor move us less than the individual bits. The practical point of view is evident and the essentials of sanitation are brought before the general public in a way that cannot but be valuable. The get up of the book is attractive, and the type large and legible.

R. G. P.

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Primer of Hygiene. By Ritchie and Caldwell. World Book Co., Yonkers on Hudson.

This is one of the rather numerous books which have appeared as a sequence of the recent developments in hygiene and the evident need for the education of the people at large. It is intended for use in the schools and tries to put the essentials of a sound body vividly before the children who are undergoing the development of a sound mind. The manner of treatment is simple, and the illustrations are clear and explain the text, which is not always true of illustrations. The arrangement is the usual one of chapters with questions following them, and the print is clear and large. If a child is able to assimilate the matter contained between the two covers and to act upon the advice there found, he should certainly grow up to be a healthy adult.

R. G. P.

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A Manual of Practical Hygiene. For students, physicians and health officers. By Charles Harrington, M. D., late Professor of Hygiene in the Medical School of Harvard University. Fourth edition, revised and enlarged by Mark W. Richardson, M. D., Secretary to State Board of Health of Massachusetts. Octavo, 850 pages, with 124 engravings and 12 full page plates, in colors and monochrome. Cloth, \$4.50 net. Lea & Febiger, Philadelphia and New York, 1911.

There has been no revision of this book for some years and the former author at the time of his death was engaged in bringing the subject matter up to date. The interrupted work has been taken up by Mark W. Richardson of the Massachusetts Board of Health, and brought to a conclusion. Some of the same comments may be made as were noted concerning the first edition. It would seem that certain of the sections receive disproportionate attention, as for instance Food which takes up some 250 pages, or more than Water, Sewage Disposal, the Relation of Insects to Disease, and Disinfection, added together. It must of course be remembered in this connection that Harrington was primarily a chemist. In the same way one may comment on the space given to



Plumbing and to the various types of Plumbing Fixtures. Many of the chapters have been thoroughly brought up to date, notably those in which Richardson's experience brings him most closely in contact with the text, but others have been little changed, as may be seen by the more or less ancient dates of the latest references noted. On the whole, however, the book is as satisfactory as any, and is of great value for reference. One may be perhaps allowed to remark upon the sequence in which the subjects are taken up, as for instance the treatment of Naval and Military Hygiene before those of Insects and Tropical Hygiene, though in the present state of war tropical service is one of the regular things.

The appearance, typography and general appearance of the book are good, and its willingness to lie flat when open is very pleasant.

R. G. P.

Medical Jurisprudence, Forensic Medicine and Toxicology. By R. A. Witthaus, A. M., M. D., and Tracy C. Becker, A. B., LL. B. Second Edition. Volume IV—Toxicology. Octavo Volume, 1271 pages, illustrated. Sold by subscription, with volumes one to three. Muslin, the set \$24.00 Law sheep \$28.00. Sold separately, muslin \$7.00. Brown Sheep \$8.00. Wm. Wood & Co., New York, 1911.

This volume completes the edition of four volumes. The text is divided into two parts: General and Special Toxicology. Under the first heading such subjects as Definition of Poison, Treatment and Prognosis of Poisoning are clearly and amply elucidated. Perusal of the chapter, Duties of Physician in Cases of Poisoning, would well repay the effort of the practicing physician who is not liable to be negligent in his duties to his patient but, through carelessness or lack of consideration of the question, may defeat the efforts of justice in criminal cases.

The section on Special Toxicology is valuable as well to the practitioner as to the toxicologist; to the former as discussing in detail the etiology, symptoms, treatment, etc., of individual poisonings; to the latter as giving the methods of toxicological analysis. The subject seems to be treated exhaustively, arsenic for instance covers 250 pages. One would expect, however, to find such a not uncommon poison as acetanilid in the index. The pharmacodynamic side of toxicology is dealt with cursorily, as is stated in the text, but ample references are given to such works.

The volume contains some 1200 pages; the text is well arranged and reads interestingly. A bibliography of works exclusively toxicological accompanies the text; the references are innumerable.

J. D. P.

One Hundred Surgical Problems. The Experiences of Daily Practice Dissected and Explained. By James H. Mumford, M. D., Visiting Surgeon to the Massachusetts General Hospital; Instructor in Surgery, Harvard Medical School; Fellow of the American Surgical Association, Boston. W. M. Leonard, publisher, 1911.

This book, written in the author's characteristic style, may be read with much pleasure and profit. The method of "teaching by cases" is a useful one, and has recently been employed by Richard C. Cabot in a volume describing medical cases. Dr. Mumford gives the history of 100 surgical patients illustrating various affections, and discusses the diagnosis and treatment in an entertaining manner.

Throughout the volume there are scattered many useful hints and suggestions of various kinds, not always purely surgical, but relating to the art of practice. While perhaps "one" can not always agree with the author in his views, "one" is interested in reading of the struggles and perplexities of another in his handling of every day cases, and the happy solution of most of his "problems."

C. A. H.

A Textbook of Surgical Anatomy. By William Francis Campbell, M. D., Professor of Anatomy at the Long Island College Hospital. Second edition revised. Octavo of 675 pages, with 319 original illustrations. Philadelphia and London. W. B. Saunders Company, 1911. Cloth, \$5.00 net; half Morocco, \$6.50 net.

This work, having reached a second edition, has evidently found favor in the minds of those for whom it is intended. It is essentially of a practical nature and the leading facts in anatomy which are of practical value are well presented. In a work on surgical anatomy, descriptions of surgical affections it seems to the reviewer, are hardly appropriate, for they are necessarily short and incomplete, and the author could use the space to better advantage in pointing out the bearing of anatomical facts on surgical diseases and injuries. The illustrations constitute an excellent feature in this book; they are clear and serve an admirable purpose. The one on page 396, however, showing the "correct and incorrect forms of Lembert's sutures" might have been omitted. A few typographical errors, such as principle for principal, Hyrtle MacCullum tubercular for tuberculous, etc., have escaped the proofreader.

The fable that the vessels of the scalp cannot retract or contract when divided is repeated by the author; the real explanation of the difficulty in securing divided arteries in the scalp is to be sought in the fact that they *do* retract within the canals in the superficial fascia which they occupy. The important facts in the anatomy of the abdominal cavity and their surgical bearings, for instance in regard to the vermiform appendix, are quite fully presented.

It is a pleasure to recommend the volume as a valuable textbook for students and for practitioners who appreciate the importance of anatomy in the recognition, understanding and treatment of disease.

C. A. H.

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A Manual of Clinical Diagnosis by Means of Laboratory Methods. For Students, Hospital Physicians and Practitioners. By Charles E. Simon, M. D., Professor of Clinical Pathology and Experimental Medicine in the College of Physicians and Surgeons, Baltimore. Seventh edition, enlarged and thoroughly revised. Octavo, 780 pages, with 168 engravings and 25 plates. Cloth, \$5.00 net. Lea & Febiger, Philadelphia and New York.

The latest edition of this valuable work appears with radical changes. The book has been divided into two parts, the first dealing with technic and laboratory procedure, and the second with the findings which may be expected in different diseases and the significance which can be attributed to them.

This departure necessarily attracts the attention of the reviewer. In the main the principle is excellent with success depending upon the manner in which it is executed. Unfortunately several reduplications appear. In the first part of the work we find (p. 268-9) a section taking almost a half page which discusses the number of tubercle bacilli in sputum and gives L. Brown's scheme for tabulation. This entire portion is repeated verbatim in the second part (p. 735-6). Another example of unnecessary repetition is found in the description of Vincent's angina, for there are 19 lines identically the same in parts one and two (p. 508 and p. 757). This would indicate either regrettable carelessness or woeful lack of system in harmonizing the two parts.

In some parts the book is scarcely full enough to be adequate. Considering the extent to which professional attention has been focussed upon the spinal fluid during the last few years, it is surprising to find no complete description of technic for determining the cellular content of this fluid by the methods of Widal, Sicard and Ravaut, and of Laiguel-Lavastine.



In recounting the methods of staining the tubercle bacillus in urine, the author places no emphasis upon the necessity of differentiating from the smegma bacillus by the use of alcohol as a decolorizing agent.

We should not recommend the section upon the Wassermann reaction to the student or the beginner. If this valuable reaction is to secure and to retain the position which it deserves as an aid in the diagnosis of syphilis, it is essential that all workers should follow the same technic as nearly as is possible. Quantitative accuracy is important, and a statement such as is found on page 146—"The amboceptor dilution to be used is then made  $2\frac{1}{2}$  to 3 times as strong" (that is,  $2\frac{1}{2}$  to 3 times the amount required to produce hemolysis with one dose of complement and one dose of cell emulsion), is manifestly slovenly. It is to be all the more strongly condemned since the ordinary rule is to use only twice the amount. It is quite conceivable that so great an excess of amboceptor might give the worker a negative result while another laboratory using the standard amount of hemolysin would report other findings.

We fear that a novice would find the method advised for securing an amboceptor by injecting 30 c.c. of sheep's blood twice with an interval of one week between injections a poor one, and would advise him to follow the method of using small doses given more frequently.

There are a few places in the second part where we note a tendency to prolixity—to a completeness in rather useless details at the expense of pungency and practicality. As an example, see the half page devoted to a description of the gross appearance of the urine in typhoid fever. After all, it tells nothing that helps, and that is, we take it, the great desideratum in a work of this nature.

In summing up, we should say the work possesses many excellent features, and, on the whole, is to be recommended. Undoubtedly another edition will see further readjustment and some elimination.

C. L. C.

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Hospital Management. A Handbook for Hospital Trustees, Superintendents, Training School Principals, Physicians, and all who are actively engaged in promoting hospital work. By Charlotte A. Aikens, author of "Hospital Training School Methods and the Head Nurse;" "Primary Studies for Nurses;" "Clinical Studies for Nurses." 12 mo. of 488 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, \$3.00 net.

The author of this book designed it for use as a handbook or textbook on the broad subject of Hospital Management. The direct management of the many phases of human activity, that the walls of a hospital must necessarily enclose, make it impossible that one person be especially well qualified to write on them all. Therefore the plan of this book, to divide the subject into many chapters—19, exclusive of the several appendices—each dealing with some definite department or phase of the management of every hospital, seems fortunate and wise. The author has written the chapter on the department of hospital activity, about which her years spent in managing such a department will qualify her to write, the Training School, and has selected carefully those to write on the other subjects. For the writers of the various chapters, the whole country was evidently searched to select those best qualified to write such chapters. The book is not the product of a few closely associated.

This arrangement recognizes the often forgotten fact that hospital work in one given institution offers positions for many to work together for a common end, yet each with a viewpoint, ideas and ideals so definite and alive to them, but so little appreciated and understood by the others. The number of the hospitals of this country is increasing rapidly, and the most of those recently founded are aspiring to and becoming complete

and general hospitals. This means that many more people all over the country are going into each of the many branches of hospital work. To these people, to get some idea of the whole machine of which they are only a part and to see all in proper perspective, this book is especially valuable. If this book were read, fewer would believe that all of the hard work was in their department. There are many, whom politics, wealth, or desire to help, bring into positions of influence in a hospital. To these such a book as this is essential, as preparatory experience is impossible and to learn from blunders may be effective, but it is also expensive.

The book deserves praise for the way in which the various departments and activities are kept balanced, that the picture may be accurate and detail correct. The aim is to promote efficiency within, not to inspire admiration from without.

A. R. W.

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**A Manual of Materia Medica.** By E. Quin Thornton, M. D., Assistant Professor of Materia Medica in the Jefferson Medical College, Philadelphia. Octavo, 525 pages. Cloth, \$3.50 net. Lea & Febiger, Philadelphia and New York, 1911.

This new work of over 500 pages presents the present status of materia medica in a form concise, and yet sufficiently complete to thoroughly cover the scope which its title implies. The author has given under each drug a brief summary of its main uses and actions and so rendered the text more interesting without trenching too exclusively upon the domain of therapeutics. Under the heading of Part I, posology, prescription writing, incompatibilities, etc., are amply considered and are very clearly and practically presented. In Part II the official drugs and chemicals are quite fully discussed, the alphabetical arrangement being followed. Part III comprises the official Pharmacopoeial preparations with their compositions and is mainly a guide for the pharmaceutical laboratory. The appendix contains a complete alphabetical list of official substances and their average adult dose, followed by an index. The volume is a convenient one and is to be commended as one of the very best upon the subject.

J. B. M.

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## MEDICAL NEWS

**C. S. Hoover, Alliance,** has left for a year's study in Europe.

**The Tuscarawas County Medical Society** met at Uhrichsville on Tuesday September 5, 1911. The program was as follows: 1. Obstetrical Observations, E. B. Shanley, New Philadelphia. 2. Dyspepsia, C. U. Patterson, Uhrichsville.

**C. H. Browning, Oberlin,** recently returned from a vacation spent on the coast of Maine.

**The Northwestern Ohio Medical Association** held a very successful meeting at Marion, O., on September 13 and 14.

**The New York Skin and Cancer Hospital** announces that L. Duncan Bulkley will give a thirteenth series of Clinical Lectures on Diseases of the Skin in the Out-Patient Hall of the Hospital on Wednesday afternoons from November 1 to December 20, 1911, at 4:15 o'clock. The course will be free to the medical profession.

**The Muskingum County Medical Society** met at Zanesville on Wednesday evening, August 9. The following program was presented: 1. What is Beyond the Ken of Medical Men, Simeon Kelly. 2. Echoes From the Los Angeles Meeting, H. T. Sutton. 3. Report of Case of



Exsection of the Tibia, W. C. Bateman. 4. Report of Case of Carcinoma of the Cecum with Hematoma of the Abdominal Wall, R. B. Bainter. 5. Report of Case of Ectopic Pregnancy, D. C. Mathews.

### Correspondence

*To the Editor, Cleveland Medical Journal:*

Referring to the article on p. 689 of your August issue, by Dr. Pomeroy, I beg to report a similar case.

Mary K., born Dec. 6, 1908, the fifth child of healthy parents, weighed 10½ pounds at birth. Vaginal discharge of blood was noted on the fifth day, and continued for two days, when it ceased and has never reappeared. No treatment was employed aside from a boric acid wash to the external genitalia.

In order to make herself more prominent in the abnormal class, little Mary came down with a beautiful case of scarlet fever when eight days old, contracting it from the other children in the family who had it at the time she was born. The mother of the child did not contract the disease, although the five children, father and aunt, all had it.

Yours truly,

N. P. McGAY.

*To the Editor of the Cleveland Medical Journal:*

Should you find it convenient to do so I shall be glad to have you give space in your Journal to my request to anesthetists to favor me with copies of their record blanks. I desire four copies; one for each of the libraries of the Kings County and the New York Medical Societies, the records of the Long Island Society of Anesthetists, and my own collection. This may seem a matter of only local (individual) interest, yet looms up larger when one considers the diversity of charts which are used, the meagre information contained in most of them, and the resultant disadvantage to any one searching them for comparison. If this matter ever comes to the attention of the Commission on Anesthesia—as I hope it will—some kind of a collection will be valuable from which to construct a standard form. I will very willingly correspond with and exchange charts with any of my colleagues who is of a like mind with me on this subject.

Yours very truly,

A. F. ERDMANN,

Instructor in Anesthesia, Long Island College Hospital.

### DEATHS

Michael J. Crilley, Foster, Ohio, died August 13, aged 64.

John B. Warwick, Lucasville, Ohio, died July 31, aged 77.

William E. LaDow, Harlem, Ohio, died July 22, aged 43.

Starling Loving, Columbus, Ohio, died July 22, aged 43.

Benjamin A. Thomas, Rushville, Ohio, died August 6, aged 75.

Ernest J. Barnes, Granville, Ohio, died August 23, aged 54.

George W. Dollison, Logan, Ohio, died August 16, aged 82.

Joseph W. Brinkerhoff, Burbank, Ohio, died August 16, aged 69.

Reed B. Burnham, Piqua, Ohio, died September 17, aged 44.

Thompson M. Wells, Bellaire, Ohio, died August 31, aged 58.

Gabriel Miesse, Lancaster, Ohio, died September 11, aged 75.

Phoebe E. Harding, Marion, Ohio, died May 29, 1910, aged 66.

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## The Treatment of Postoperative Septic Peritonitis, With Report of Cases.

By HUNTER ROBB, M. D., Prof. of Gynecology, Western Reserve University, and Visiting Gynecologist to the Lakeside Hospital, Cleveland.

In an experience of some twenty-five years in abdominal operative work I have met with my share of those cases that developed a postoperative septic peritonitis. Such cases, as you know, usually last some four days, or longer, during which time the surgeon tries various remedies and procedures which not only are not always successful in preventing a fatal issue but undoubtedly, at times, add not inconsiderably to the discomfort of the patient, whose condition is already pitiable enough. Finally, when death occurs, although the unfavorable result may be attributed to shock, exhaustion, paralysis of the bowel, pneumonia, inflammation of the kidneys or what not, we cannot but feel that in the majority of these cases at least the primary cause has been a septic peritonitis, and the other factors enumerated were simply consequences.

Nor do I by any means intend to imply that these cases of postoperative septic peritonitis are often the result of any fault of the operator, for when we consider the serious condition in which these patients are at the first operation and when pus is so often found to be present, it is hardly any wonder if a postoperative peritonitis should follow, even when the operative procedures and the technic have been faultless. In my clinic about two-thirds of our abdominal operations have been for chronic suppurative processes affecting the tubes and ovaries.

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*Read before the Section in Obstetrics and Gynecology of the Buffalo Academy of Medicine, March 28, 1911.*



But after all the main question is, How can we save a larger number of these unfortunate patients? You are all familiar with the usual procedures, the hypodermics, the infusions, the local applications, but in my experience these have so often failed me that I have been anxious to find some other, even if it be apparently a more heroic treatment that might promise a larger percentage of successful results.

Experience, or I might say frequent sad experiences, have led me to the conclusion that by appropriate operative measures we can save quite a large number of these infected patients, provided that we decide to intervene early enough, for I cannot but feel that we are inclined to let things go on too long, hoping against hope without any foundation for our expectation of betterment, and only deciding to institute radical procedures when humanly speaking nothing could save the patient.

Of course it will always be somewhat difficult to decide when operative measures should be resorted to, especially as we often find the general condition of the patient to be fairly good apart from the rapid pulse, some vomiting—which, however, may occur only at infrequent intervals—and a more or less marked degree of restlessness. Incidentally I would say: Do not minimize the significance of vomiting especially when lavage is needed to control it.

Often the unfavorable symptoms may be attributed to the shock of the operation, nervousness, or the fact that the bowels have not been sufficiently opened. But it must be remembered that after an ordinary abdominal section we ought to have but little trouble, and I am strongly of the opinion that when these unfavorable conditions develop we should not hesitate to reopen the abdomen, wash out the pelvic cavity and institute thorough drainage. Moreover, in my judgment, it is much better to take chances on an early intervention, for although we shall in this way occasionally do an unnecessary secondary operation, this will usually prove harmless, if not beneficial, and by following this course I feel sure that we shall save a few additional lives.

Although fine distinctions cannot be drawn these patients may be roughly divided into three classes: (1) Those who are in a generally good condition when leaving the operating table; (2) those whose condition immediately afterwards gives us some anxiety; (3) those who are in a critical condition from the

time of the first operation. In any case we must first try to exclude the existence of shock as the cause of the condition. This I own is very difficult to do and much depends upon the individual case and the judgment of the operator. Internal hemorrhage, I believe, can often be excluded if careful hemoglobin estimations are made, for we may feel pretty sure that when the hemoglobin is stationary, bleeding has ceased.

In the first class of cases, those in which the patient has been returned to the ward in good condition, if within the first 24 hours the pulse begins to increase in rapidity until it reaches 130 or 140 or more, and if the patient vomits every now and again, after she should have gotten over the effects of the ether; if at the same time the temperature rises and the patient is restless and complains of abdominal pain, in the last few years I have not hesitated to reopen and wash out the abdomen and introduce gauze drains. For an anesthetic, cocain is often sufficient, but when needed, nitrous oxid gas adds practically nothing to the degree of shock.

In other classes of cases, where there is considerable pain after recovery from the effects of the anesthetic, if the condition shows no tendency to improve after the first 24 hours I institute similar procedures. Generally the second operation can be carried out while the patient is in her own bed, and the shock is practically *nil*. The operation is a simple one, and I feel like apologizing for mentioning briefly the details: After everything has been gotten ready, the Kelly pad is put under the patient and the dressings are removed. The edges of the skin incision are slightly separated and from 10 to 20 drops of a 5 or 10% solution of cocain are applied to the tissues. The deeper stitches are then removed, and if the patient complains of much pain, more cocain is applied or injected into the deeper tissues. The peritoneum having been incised a two-way catheter is introduced as far down into the pelvis as possible and the cavity is flushed out with several quarts of sterile salt solution. Finally a strip of gauze is introduced as far down as possible into the cavity and the usual dressings are applied. If cocain proves to be insufficient at any time nitrous oxid gas is administered to surgical anesthesia.

Such an operation usually takes only from 5 to 15 minutes



and with the patient in bed well covered and in a warm room, the shock is very slight.

The usual postoperative measures are then employed. I have had quite a few of these patients in whose cases I have not carried out these procedures and the results have been so uniformly unsatisfactory that I feel I am more than justified in risking something, especially as I feel that in the few cases in which I have not accomplished any good I have at least done no harm and have made an honest effort to save an otherwise hopeless case.

I will now very briefly give an account of 15 cases in which this procedure was resorted to. Of these patients 11 recovered and four died.

### RÉSUMÉ OF CASES.

I. Operation, December 12, 1894. Supravaginal hysteromyomectomy (modified Porro operation) for a large myomatous tumor. On the tenth day following the operation patient showed evidences of a beginning peritonitis. The pulse varied between 140 and 150, and she had frequent vomiting, with marked abdominal distension. The abdomen was reopened, irrigated and drained, and the patient recovered.

II. Operation, February 20, 1896. Double salpingo-oophorectomy for a myomatous uterus. Convalescence following the operation was uneventful. The patient insisted upon leaving the hospital at the end of the second week. She had been home only a short time when she began to have cramp-like pains in the lower abdomen, with a rapid pulse and some vomiting; this condition kept up intermittently for about nine weeks, when the abdomen was reopened and drained. The patient recovered.

III. Operation, July 6, 1897. Section for adherent lateral structures. Dense adhesions on the right side. On the second day after the operation the patient began to have severe abdominal pains and vomiting. The pulse varied from 130 to 150, and the temperature from 103 to 104° F. The abdomen was reopened under cocain anesthesia, and more than a pint of turbid-looking fluid escaped. This had an ammoniacal odor, showing that the ureter had been injured. The abdominal cavity was washed out with saline solution and drained. The patient recovered.

IV. Operation, March 28, 1898. Section for chronic adherent tubes and ovaries. The abdomen was drained. The temperature was 101° F., and the pulse 140, 72 hours after the operation. The patient was nauseated and the abdomen considerably distended 48 hours after the operation, and the patient vomited matter which had a fecal odor. The abdomen was reopened March 31. The intestines were very much distended and in one place there was a kink. On slight manipulation the intestine ruptured in one place and gas and fecal matter escaped. Saline

infusions were used throughout the operation but the patient died on the table.

V. Operation, June 7, 1902, for adherent tubes and ovaries. Convalescence was uninterrupted until June 11. The temperature ranged from 99 to 100° F., the pulse from 80 to 90. On June 19, as the bowels had not been opened for three days, and as the patient was vomiting a clear fluid, and marked abdominal distension was present a diagnosis of ileus was made, and the abdomen was reopened. The small intestine was found twisted upon itself and adherent to itself, to the pelvic wall and to the pedicle on the right side. During separation of the adherent intestine rupture occurred. The openings were closed and the abdomen was washed out and drained. Death occurred from shock one hour after the second operation.

VI. Operation, March 5, 1904. Section for adherent left tube and ovary, adherent retrodisplaced uterus. The abdomen was closed without drainage. The temperature was 101° F., the pulse 160, 24 hours after the operation, and the patient was complaining of a great deal of abdominal pain. The abdomen was distended, and vomiting had been present since the operation. On March 7, two days after the operation the temperature was 103° F., and the pulse 156. On the same evening the abdomen was reopened and washed out with saline solution. The next day the temperature was 100° F., the pulse 120. Three days later the temperature was 103.8° F., and pulse 132. The abdomen was again flushed out. Some fluid was found in the right pleural sac. Two days later 5 c.c. of fluid were obtained by aspiration from the left pleural sac. The temperature varied between 98° and 102° F., and pulse between 100 and 136 for the next 62 days. On April 16, a small swelling was found extending from the anterior to the posterior axillary line in the sixth interspace. On April 20, this was aspirated but no pus found. On May 3, the swelling was opened, and three ounces of pus escaped. Bacteriological examination of the fluid from the abdomen and the pleural sacs showed streptococci. On May 12, the temperature and pulse were normal. The patient recovered.

VII. Operation, October 14, 1905. Vaginal incision for infection following labor. Several ounces of bloody fluid escaped from the cul-de-sac. On November 21, a section was performed for extensive disease involving both tubes and ovaries. Each ovary was about as large as a good-sized orange. The abdomen was closed without drainage. The temperature was 102°, and the pulse 132, 48 hours after the operation. The patient vomited a small amount of brownish fluid and had several small liquid stools. She complained of a great deal of pain in the right side in the lower abdomen. Pulse 132 to 144. The abdomen was much distended. On November 23, the abdomen was reopened under cocaine anesthesia and washed out and drained. The pulse, after the second operation (for a day), was between 150 and 160. The next day the pulse was stronger and slower. The patient recovered.

VIII. Operation, October 17, 1905, for densely adherent tubes and ovaries with adherent intestines and bladder. On the fifth day after the



operation the pulse rose to 140, the temperature to 101.5° F. The bowels had been moved freely and good quantities of urine were being passed each day. As the patient was complaining of considerable pain in the abdomen with occasional nausea and vomiting, and as the gravity of the symptoms appeared to be increasing, the lower end of the abdominal incision was reopened, allowing some gas and a dark purulent fluid which a somewhat fecal odor to escape. The cavity was irrigated carefully and drained. A few hours after this the dressings were found to be saturated with a clear ammoniacal-smelling fluid—apparently urine. The next day the pulse and temperature dropped slightly, and urine could be detected on the abdominal dressings. The convalescence progressed smoothly until the sixth day after the reopening of the abdomen when some fecal matter was noticed on the dressings. From then on the urinary discharge gradually decreased, while the fecal discharge varied in quantities for about a month, when it began to decrease. The patient recovered. Seven months after the operation the fistulous tract had entirely closed, and she was gaining strength daily and looked and felt well.

IX. Operation, June 9, 1908, for adherent suppurative tubes and ovaries. Pus oozed from the tubes. The temperature was 102.8° F., and the pulse 140, 48 hours after the operation. On June 11, the abdomen was reopened under cocain and flushed out with saline solution. Profuse hemorrhage occurred from some point in the pelvis, but was controlled by packing with gauze. The infection was due to streptococci. The patient died. Bacteriological examination of the fluid from the abdomen showed large numbers of streptococci and colon bacilli. It is worthy of note that although this case proved fatal the pulse and temperature did not indicate the gravity of the situation.

X. Operation, Feb. 28, 1910, for adhesions and inflammatory processes involving both tubes and ovaries, with suspension of the uterus. The pulse was 148 24 hours after the operation. The abdomen was considerably distended and the patient complained of a great deal of abdominal pain. The abdomen was reopened on the fourth day after the operation under gas anesthesia, and a considerable amount of turbid yellowish fluid escaped. The abdomen was irrigated and drained. The pulse gradually got weaker and two days later she died. In this fatal case also the pulse and temperature were not markedly increased.

XI. Operation, March 1, 1910, for a ruptured ectopic pregnancy. A vaginal incision was made and three ounces of blood and necrotic tissue escaped. Cultures from the uterus and cul-de-sac showed streptococci. Eleven days later the patient had a temperature of 105.7 F. and the pulse rose to 154. The abdomen was opened, allowing some blood clots to escape. The cavity was washed out and drained. The pulse and temperature gradually came down and the patient recovered. Streptococci were also found in the fluid from the abdomen. Such a recovery from a streptococcic infection is somewhat fortunate.

XII. Operation, March 17, 1910, for a left pyosalpinx. The tube ruptured, and some pus escaped into the abdominal cavity. After 24

hours the temperature was  $101.5^{\circ}$  and the pulse 156. The abdomen was distended and the patient complained of a great deal of pain. Three days after the operation the abdomen was reopened, irrigated and drained. The temperature 48 hours later was  $101^{\circ}$  and the pulse 120. The pulse and temperature gradually fell to normal. The patient recovered.

XIII. Operation, April 6, 1910. Hysteromyomectomy for an interstitial myoma of the uterus. The temperature rose to  $104.1^{\circ}$  F. and the pulse to 144 96 hours after the operation. The abdomen was distended and the patient was vomiting at infrequent intervals and complained of a great deal of abdominal pain. The abdomen was reopened under cocain anesthesia with the patient in her own bed. The pelvic cavity was irrigated and drained. In 48 hours after the second operation the temperature and pulse had fallen to normal. The patient recovered.

XIV. (Secondary abdominal section.) Operation, April 8, 1910, for removal of an adherent retroflexed uterus. The omentum was derisely adherent. After 72 hours the temperature was  $102^{\circ}$  F. and the pulse 88. The temperature varied between this point and  $104^{\circ}$  F. for a week, and pulse from 126 to 130. On May 3, the abdomen was reopened under cocain anesthesia. The cavity was washed out and drained. After this the pulse and the temperature gradually came back to normal. The patient recovered.

XV. Operation, Oct. 24, 1910, for pelvic inflammatory disease with suspension of the uterus. The temperature was  $102.4^{\circ}$  F. and the pulse 136 to 140 96 hours after the operation. The patient complained of a great deal of pain in the abdomen with frequent vomiting and distention of the abdomen. The abdomen was reopened four days after the operation under nitrous oxid gas with the patient in her own bed. A small amount of bloody fluid escaped. The temperature, 24 hours later, had fallen to  $101^{\circ}$  F. and the pulse to 128. From then on the condition improved without any interruption, and the patient recovered.

#### ANALYSIS OF CASES.

No. of cases 15. Oldest patient 43. Youngest 24. Average age 31.  
No. of pus cases 8. The interval between the first and second operation varied from 1 to 25 days.

Highest temperature before second operation	105.7° F.
Lowest " " " "	100.5° F.
Highest pulse " " "	156.
Lowest " " "	130.

Anesthesia employed: Cocain 6 times, ether 1, ether and chloroform 1, gas 3 times, in 4 others the anesthesia is not recorded.

In 2 cases an obstruction of the bowels was demonstrable. In 3 cases organisms were demonstrable before or at the second operation.

Recoveries 11. Deaths 4. Mortality 36%.

#### CONCLUSIONS.

My experience has taught me that critical cases of periton-



itis developing after abdominal operations call for early operative interference before the condition becomes hopeless. In patients presenting serious symptoms I do not hesitate to reopen the abdomen and wash out the cavity and institute drainage. This procedure, I believe, has considerably lessened my mortality in such cases.

702 Rose Bldg.

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### The Open Method of Treatment for Fractures.

By A. F. HOUSE, M. D., Cleveland.

The treatment of simple and compound fractures by the open operative method has gained much in favor during the past few years. In spite of the fact that there are many surgeons with a large experience in this branch of surgery, perfection has not been attained, and the controversy as to its field of application still continues.

In compound fractures, where the bones are exposed, and the ends of the bones cannot be kept in apposition by external splints, direct fixation has come into general use in the treatment by surgeons of large experience. But when the treatment of simple fractures is presented for discussion, there is a lack of uniform opinion.

In presenting this subject for your consideration, I shall draw from my own personal experience, taken from a rather extensive service in casualty surgery of some 25 years. It is not my intention to give you a tabulated list of cases, nor to quote the literature upon this subject, but to give you, in brief, the summary of observations and experiences regarding the management of simple and compound fractures, with special reference to the open operative treatment with direct fixation of the fragments.

When we stop to consider the extreme difficulty, and in many cases the absolute impossibility of effecting an accurate anatomic adjustment of fractured bones by manipulation, and the uncertainty of fixing and maintaining the broken ends in perfect apposition, it would seem that we must instantly decide in favor of operative treatment and the employment of such mechanical devices as will hold in perfect alignment the

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broken bones. That this is the ideal method, I think we all admit; but in our enthusiasm for operative victories we must stop and ask ourselves, are we securing from the non-operative treatment all that we possibly can? When should we employ operative measures? What should be the general indications for operation? These are vital questions, and must be answered pro and con.

In many cases deficiencies in non-operative treatment, which unquestionably do exist, should be remedied, not by operating more frequently but by exercising greater care in the employment of the fundamental principles recognized the world over as underlying the treatment of all fractures, namely: general anesthesia, extension, counterextension, pressure, counterpressure, the exact application of anatomic knowledge, immobilization, the comparative use of the x-ray, massage, the care of joints adjacent to the injury, and ultimately, the securing of approximately anatomic form and perfect function.

Whenever and wherever these basic principles are applied intelligently and consistently, the results are uniformly good, and the operative margin is then narrow. True, operating on freshly fractured bone is today safe if the operative technic is perfect. Osteitis and necrosis do not commonly follow properly placed direct fixation materials, such as wire, nails, pegs, plates or screws. Union of the fracture is usually facilitated, and not delayed, by operation. Damage to the soft parts extensive enough to cause postoperative difficulties may be avoided and is not a menace. The local conditions surrounding recent fractures are quite different from those discovered at the seat of an old fracture or of one of several days' duration.

Bardenheuer, in Germany, has demonstrated the efficiency of non-operative methods. He has proved that the results following the consistent employment of non-operative methods are, as a rule, satisfactory.

That non-operative measures are efficient in the treatment of the vast majority of fractures has been proved in this country over and over again, both in hospital and private practice. I wish to impress upon you that an anatomically perfect result following a fractured bone is not absolutely necessary to a functionally useful limb, or necessary even to the individual. Approximate reduction, that is non-anatomic,



is followed by union and by a functionally useful limb, and by no deformity apparent to the patient or his friends.

Stimson recently said regarding this matter: "Irregularities of outline are functionally and cosmetically unimportant in the great majority of cases in which proper non-operative treatment has been used. Anatomic results are ideal and theoretically desirable. Practically, they are unessential. The ideal treatment may not be the most expedient. Operation is often contraindicated chiefly because it is unnecessary. It must be remembered that the results of operative treatment may not be more satisfactory than are the results from non-operative treatment. Operation does not carry with it, or imply the guarantee of, a more perfect anatomic result. The majority of simple or closed fractures can be satisfactorily treated by non-operative methods, provided the medical attendant possesses the proper mechanical skill in this line of work, for we must remember that the majority of fractures are treated by the general practitioner."

No inexperienced physician would attempt laparotomy for some abdominal lesion with which he was not familiar, and yet how many would think of referring a case of simple fracture to a surgeon? In the former case, life might be involved. In the latter, the worst that could happen would be an imperfect result, a crippled limb which the poor patient is convinced was the outcome of his misfortune and not the result of the faulty technic applied. How are we to decide then as to operative and non-operative methods when the cases present themselves? This is a question of great importance, not only to the surgeon, but to the patient as well. I believe, therefore, we must be guided in the treatment of fractures, either simple or compound, by certain conditions, namely, should it be found that reduction cannot be accomplished in the usual way, or that coaptation cannot be maintained, and that deformity with impaired function is unavoidable in any given case of fracture, there should be no hesitation in resorting at once to the open treatment, provided all other conditions, including the operator's training and technic, are favorable to the procedure.

In 1890, I first began using wire nails to hold the fragments in apposition in compound and ununited fractures. I soon learned that after a lapse of eight to ten days, there was

a softening of the ends of the bone, and the nails became loose, and in some instances would pull out in removing the dressings. This condition of softening of the bone I at first thought was pathologic and peculiar to some individuals. I learned, however, after I had become more familiar with the Roentgen ray findings, that a certain amount of bone softening after fractures is physiologic. The skiagraphic shadow depends on the amount of inorganic matter present in the bone. This inorganic matter is made up of phosphate, carbonate, fluorid of calcium, and a small amount of phosphate of magnesium, altogether about 67% in the normal bone.

As regards fixation materials and appliances, it may seem unnecessary to enter into a discussion of the merits of the various things I have used, but experience has taught me that the kind of material, and the method of application, has a decided influence in the final results in many cases. Silver wire is too fragile and breaks too easily to be of much service. Bronze aluminum wire is much stronger, but is rather hard to manipulate. Wire nails become loose too soon to maintain accurate apposition until union of the fragments takes place, but in ununited or delayed union, the results are much better and they serve the purpose in a most desirable way. In recent fractures, screws act very much in the same way as nails, and are therefore not to be recommended. Picture wire has more tensile strength than either bronze aluminum or silver wire, it is much more pliable, and answers the purpose much better. Kangaroo tendon and chromic gut lack certainty of strength and their durability is uncertain. I have had no experience in the use of ivory or bone pegs.

Of all the material and appliances used, metallic plates have given the best results. These plates may be made either of steel, silver or aluminum. I prefer those of aluminum. This metal possesses considerable flexibility and is sufficiently pliable to adapt itself to any inequality of the bone, and is not so prone to break or to pull out the screws in putting on the splints and final dressings, which is frequently the case in the steel plate as used by Lane of London.



### A Case of Acute Leukemia.

By M. J. LICHTY, M. D., Cleveland.

The case to be reported seems rather unusual to me and worthy of report, not so much on account of the extreme rarity of acute leukemia, but on account of the history of malaria many years previously which might be considered sufficient cause for the very marked enlargement of the spleen and for some of the later developments. And while the blood was examined carefully by several observers during the last six weeks of the patient's final illness, no blood changes, such as one finds in leukemia, were found, until the last few days when we were surprised to find the marked leukocytosis, and peculiar nervous signs differing from those usually seen in the terminal stage of leukemia.

The patient was admitted to Lakeside Hospital December 19, 1910, under the care of Dr. W. H. Weir, who has kindly given me some of the hospital records. She was admitted to that hospital expecting an operation for relief of uterine procidentia. She was, however, not considered a favorable case for operation as she had fever of 100 to 101° every evening and there were some signs suggesting pulmonary tuberculosis; no tubercular bacilli could be found as there was no expectoration.

A blood examination at that hospital was made December 19, and showed 80% hemoglobin, leukocytes 2,080. Another examination December 26 showed 2,400 leukocytes and in the differential count the following percentages: polymorphonuclears 66.5%, small lymphocytes 23%, large lymphocytes 5.5%, eosinophiles .5% basophiles .5%, transitionals 4%. December 30 the leukocytes numbered 2,800.

The spleen at first was but slightly enlarged, but later became easily palpable but never very large. On account of the history of malaria some years before, large doses of quinine were given without any effect upon the temperature or other symptoms.

She left Lakeside Hospital January 10, 1911, after three weeks' observation. She came under my care January 21, 1911, and was admitted to St. Luke's Hospital two days

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later. While there she had about the same advice which was given by Dr. Weir relative to operation. She left St. Luke's Hospital January 31, and went home, where she died February 6, 1911.

The patient, Mrs. S., was 54 years old, and mother of three healthy children. Her family history was good except for the death of one brother of tuberculosis. She had never been seriously ill and had had no infectious diseases, excepting an old-fashioned ague for eight successive summers, many years before while living in an ague district.

Six months previous to admission to the hospital she developed a cough, but there was little or no expectoration and no appreciable loss of weight. During this period of coughing the uterine procidentia became more annoying and made her extremely nervous, even irritable. My first interview with her was far from pleasant, because the family called me to see her on a Friday, very contrary to her prejudice against making a change of doctors on that day.

Her irritability impressed me most emphatically. She complained of weakness, anorexia, obstinate constipation, cough, night sweats, backache, frequent headaches, annoying leukorrhea and prolapse of the pelvic organs.

At the first examination the pulse was 100 and the temperature 99°. There seemed to be a slight impairment of resonance at the apex of the right lung. Fine moist rales were scattered over both lungs. The cardiovascular system seemed normal. The reflexes and glands were normal. The abdomen was negative except for a very large spleen extending from the sixth rib in the midaxillary line and the angle of the scapula to the crest of the ilium. It extended near the median line anteriorly, was tender to the touch, and had a notch on the edge easily palpable. The uterine prolapse was extreme. These physical signs were all noticed again when the patient was admitted to St. Luke's Hospital two days later. There the urine was found normal. The gastric contents were hyperacid, free from blood, and there was no blood in the feces. The sputum showed no tubercle bacilli, and the von Pirquet tuberculin test was negative.

A blood count made January 23 showed 60% hemoglobin, leukocytes 4,000, red blood cells 3,800,000. The differential count gave normal percentages. A second blood count on



January 26 showed 70% hemoglobin, leukocytes 7,200 and red blood cells 4,800,000. At this time, though, there was noticed an increase in the lymphocytes: large lymphocytes 20%, small lymphocytes 21%, polymorphonuclears 52%, eosinophiles 1%, transitionals 6%.

Dr. R. E. Skeel, who saw the patient with me, advised against an operation on account of a fear of tuberculosis or Banti's disease.

In five weeks, the records show, there were five blood counts all of which showed a leukopenia, with the exception of the last when the leukocytes were 7,200. The several differential counts were practically normal except the last one which showed an increase of the lymphocytes, 20% small and 21% large. So that the blood picture of leukemia was not present when she left St. Luke's Hospital.

When the patient went home she was advised to take the rest cure and open air treatment. She was much disappointed on account of having no operation.

When I saw her at her home a few days later and advised rest beneath a window awning, which was then being placed in the room, she was excited and obstinate, saying that the nurse could not force her beneath the awning, and that she never would sleep there (and she never did).

On February 3 she was noisy, half hysterical, almost delirious. February 4 there was a partial motor and complete sensory paralysis of the left arm and leg. I thought the paralysis was hysterical. February 5 there was a complete motor paralysis of the left arm and leg and some of the tongue, and she was semicomatose. February 6 both arms and legs were paralyzed, she was profoundly comatose, and died in the evening. On this day I had Dr. E. C. Davis see the case for me to make another blood count when we were surprised to find 96,000 leukocytes.

The percentages in the differential count, if correct, show something very rare: polymorphonuclears practically none, small lymphocytes 2%, large lymphocytes 5%, myelocytes 8%, eosinophiles 85%.

There were large and small red cells, some nucleated red cells, but no poikilocytosis.

Unfortunately we could get no autopsy.

To me the case seems like one of true acute leukemia and while I notice in the cases reported that there is no regularity in the percentages in the differential count of leukocytes in acute leukemias, I have, after all, seen no report where there were so many eosinophiles.

Several questions must arise for consideration.

Is the diagnosis correct in any phase whatever? Was it a case of chronic splenic hypertrophy with acute leukemia at the very last; or was it a chronic leukemia with a normal leukocyte count when the patient was at her best, and then a final relapse with increased leukocytes just before death? Such cases have been reported and have been called "aplastic leukemia," while the leukocyte count was normal; but even then, when the differential count was made, it showed the characteristic percentages such as are found in leukemia. But these aplastic leukemias will show, when seen under the most favorable conditions, an almost normal amount of hemoglobin, and the usual number of red and white corpuscles.

While such changes are not common they are, after all, not impossible and make one wonder what changes in the blood may not take place with chronic enlargement of the spleen. That splenic anemia (in which the blood findings are not far from normal at times, at least altogether different from leukemia) may develop in the course of leukemia or be its sequel is not beyond doubt. I must refer to such a case, described by Osler in *The American Journal of the Medical Sciences*, which was diagnosed as leukemia some years before by Dr. J. A. Lichty, who was then a physician at Clifton Springs, N. Y. The same diagnosis was later made by a physician in London. Dr. Osler was convinced of the accuracy of this diagnosis after examining some of the blood slides forwarded to him. But years later when Dr. Osler saw the case at his clinic at Johns Hopkins, the patient's condition was entirely changed and then, in the absence of a leukocytosis, he made the diagnosis of splenic anemia.

One can not help but wonder, therefore, if there is not a close relation between acute leukemias, aplastic leukemias, and splenic anemia, and whether or not they after all are perhaps only types of the more chronic leukemias or splenomegalies.



## Severe Puerperal Sepsis, Due to Gonococcus Infections.

By JOSEPH T. SMITH, JR., M. D., Cleveland.

To the average physician, the term "Puerperal Sepsis" has become intimately associated with the term "Streptococcus," and when the expression is heard, the coccus is at once connoted as an etiological factor. Yet everyone knows that other causative agents exist, and *B. coli*, staphylococci, and other microorganisms have received due credit for the part they play in childbed fever.

In 1893, Krönig<sup>12</sup> proved that the gonococcus could be the cause of a febrile puerperium, and he then collected nine cases in which the diplococcus was the etiological factor. Later the same author, showed that in 179 cases of puerperal fever, 50 were due to the gonococcus. Taussig<sup>24</sup> estimates that one-sixth of all cases of puerperal fever are due to this cause. If we agree with Buckhardt, Oppenheimer, and v. Steinbuchel<sup>28</sup> that 18 to 27% of all pregnant women harbor the gonococcus, we are chiefly surprised that so large a percent of women in well regulated hospitals pass through their puerperia with no rise of temperature above 100.5°.

Granted, then, that a gonococcal form of puerperal fever is quite proved to exist, the fact remains that such an infection is generally considered to run a very mild course, and to offer a very good prognosis as compared with forms due to other and more virulent microorganisms, such as the streptococcus. Often, physicians seem quite relieved to find the gonococcus present in the lochia of such patients, for such a finding usually points to a favorable outcome for the woman. Moreover, as the gonococcus is the only microorganism whose presence in the birth canal at such a time casts not the least discredit upon the aseptic technic of the obstetrician, that gentleman is naturally pleased to be freed from all taint of blame for his patient's fever.

It is for the purpose of emphasizing the fact that gonorrheal puerperal infections may be extremely serious and even fatal that this report is being made. We have known for years that gonorrheal infections are never trifling, and we are learning more and more that the gonococcus is one of the chief "Captains of the Men of Death," as Dr. L. F. Barker has called it. The work of Thayer and Lazear<sup>25</sup> drew atten-

tion to metastatic gonorrheal lesions of the heart, but none of the cases they report were puerperal in origin. Harris and Dabney<sup>9</sup> reported a fatal case of puerperal gonorrheal endocarditis from the clinic of Dr. J. W. Williams, at Johns Hopkins Hospital. They did not collect any other cases from the literature. In 1907 McDonald<sup>16</sup> reported another fatal case of the same kind.

Several cases of puerperal infection in which the gonococcus has been shown to be the organism involved have come under my observation; but of these, two were remarkably severe; and they made such a deep impression upon me that it has seemed worth while to report them.

Case I. C. C. (J. H. H. No. 3514), single, aged 21, a nullipara.

Family history was unimportant.

Personal history: Had suffered as a child from tuberculosis of the left hip. Later, some three years before present illness, this hip had been operated upon. The joint was quite ankylosed after the operation. The leg had been carried for years slightly flexed and adducted. This condition made the proper exposure and cleansing of the perineum extremely difficult.

Present illness: On October 25, 1907, I was called to the home of this woman. She was lying on a pile of rags upon the floor, with the child already born and in good condition. The placenta had not come away, but was readily delivered by a Crede maneuver. There was only a slight nick in the mucosa of the fourchette, which did not require stitching. Thus, it will be noted that so far as we could learn there had been no vaginal examination or manipulation of any kind during her entire labor. On the third day, in the evening, there was slight fever, with pain in the lower abdomen. This condition continued for the next week, the patient never appearing alarmingly ill, although the temperature at one time reached 103.4°. The lochia was profuse, and rather foul. On physical examination during this week, the heart and lungs were quite clear. The abdomen was flat, and the bowels open. On vaginal examination, there was much sensitiveness upon the sides, but no masses could be felt. After ten days, hot douches relieved the pain somewhat, and the fever subsided. Two weeks after delivery, the fever became



worse. A loud heart murmur was present, and she was sent into the medical ward of Johns Hopkins Hospital, with a diagnosis of acute endocarditis.

Here, acute aortic insufficiency was diagnosed. A blood culture was taken, and pure gonococcus recovered. She lingered on for about a month, steadily losing ground. A double pleurisy developed; and a week before death, pericarditis was diagnosed. Pericardial effusion was removed by tapping two days before death, and gonococci found in pure culture in the fluid. She died December 24, two months after labor. At autopsy the following notes were made:

*Anatomical diagnosis:* Subacute gonorrheal urethritis, cystitis, endometritis, and salpingitis; gonorrheal septicemia; acute vegetative aortic endocarditis; acute fibrinous pericarditis with effusion; acute bilateral pleuritis with effusion; acute pleuropericarditis; bilateral bronchopneumonia; acute fibrinous pelvic peritonitis; chronic nephritis; large white kidneys; acute splenic tumor; central necrosis and parenchymatous degeneration of liver; chronic arthritis of hip joint (left); chronic gastritis; hypertrophy of the isthmus of the thyroid.

Body: That of a fairly well nourished white woman, is 159 cm. in length. Rigor mortis is marked in the extremities. Livor mortis is present in the dependent parts. The conjunctivae and skin have a distinct yellowish tinge. The left hip is flexed at an angle of 30°. The left knee is likewise flexed but movable while the left hip is almost completely ankylosed. Extending down from the anterior superior spine of the ilium on the left is a healed scar 5 cm. in length and 1 cm. in width. In the left groin is a sinus with a ragged edge about 1 cm. in diameter which is about 6 cm. in depth and leads into the hip joint where some roughened bone can be felt. The abdominal fat is well preserved and of a light yellow color. The peritoneal surfaces are everywhere smooth and moist. The liver extends 3 cm. below the tip of the xiphoid. In the pelvis, there is about 150 cc. of a straw colored fluid in which numerous large white flakes float about. The tubes are injected on their serous surfaces most especially at their fimbriated ends but they are perfectly free of adhesions. The posterior surface of the uterus is slightly dulled by a fibrinous exudate. The left pleural cavity contains about 1 liter of cloudy straw colored fluid in which many flakes of fibrin are seen. The lung is adherent to the diaphragm and the parietal pleura by an easily torn friable fibrinous exudate. The pleura is likewise bound down by fresh adhesions to the pericardium where the two are in contact. The right pleural cavity contains about 500 cc. of a similar fluid. It likewise is bound down to the diaphragm and posterior parietal pleura by a similar exudate, but this is not nearly so extensive as on the left side. The pericardial cavity is distended with a fluid (200 cc.) similar to that found in the pleural and peritoneal cavities. The pericardial surfaces as well as the epicardial surface are everywhere covered by a pale gray, shaggy, friable,

fibrinous exudate. This measures about 2 mm. in its thickest portion.

Heart: On removal of the heart, a considerable amount of dark brown fluid blood escapes. The heart is dilated, the right ventricle more especially. The epicardial surfaces are covered by the exudate above described. This is probably most marked on the anterior surface. The right auricle is normal in size and appearance. The tricuspid orifice admits three fingers, the cusps seem delicate and normal, as do also those of the pulmonary valve. The right ventricle contains a small amount of postmortem clot closely adherent to the papillary muscles. The wall is thinned and the flesh is flabby. The left auricle likewise is quite normal. The mitral valve seems competent and delicate. The orifice is of normal size, barely admitting the tips of two fingers. Along the line of closure of the valve there are a few pin-point, grayish, pale elevations. The aortic orifice is of normal size. The right posterior cusp is covered by a large yellowish gray mass about the size of the terminal phalanx of one's finger, which is very friable. On the left posterior cusp there are several smaller masses of similar appearance and consistency, measuring several mm. in diameter. These are likewise seen at the base of the aorta and on the ventricular endocardium near the aortic orifice. The left ventricle is dilated. Its walls are flabby, of a pale brown color, here and there flecked by grayish pale looking areas. It averages 16 mm. in thickness. The coronary arteries were not opened.

Lungs: The left lung is separated easily from its parietal adhesions but with slightly more difficulty from the pericardium. Its surface is everywhere dulled and covered by a young, granular, fibrinous exudate. It is mottled brownish red with irregular patches of dark gray-black coal pigment scattered about. It is fairly voluminous, but many non-air-containing areas are felt. These are more numerous in the lower lobe. The bronchial lymph-glands are enlarged, soft, homogeneous, grayish-black in color. The bronchi exude a considerable amount of pinkish, frothy fluid. On section the lung tissue is everywhere dull and cloudy in appearance, of a pinkish gray color, in which the consolidated areas do not stand out sharply, but are seen as slightly browner areas of irregular shapes scattered throughout. They are firm, but are not as granular as one might expect. The right lung: The pleural surfaces are for the most part smooth, except for the posterior portion and the diaphragmatic surfaces. These are covered by the above described exudate, which is likewise quite abundant between the lobes. The bronchi contain much more fluid than those of the left. The areas of consolidation are much more numerous than on the left, but have the same general characteristics.

Spleen: This is markedly enlarged. It measures  $16 \times 10 \times 8\frac{1}{2}$  cm., weighs 510 grams. It is soft. The capsule is delicate, grayish in color, and through this the splenic pulp is easily seen. On section, there is a marked excess of pulp. This is of a dull gray-brown color. The Malpighian bodies stand out prominently as gray opaque areas about 1 mm. in diameter. There is no increase in fibrous tissue.



**Stomach:** This is dilated with gas. It contains a considerable amount of brownish black foul smelling material. The mucosa is slightly thickened and granular in appearance, and is of a pale pink color. In areas this is almost red.

**Liver:** This is large, measuring  $23\frac{1}{2} \times 19 \times 8$  cm., weighs 1750 grams. The capsule is delicate. The edge is rounded and firm. On section, the lobulation is distinctly made out, the centers being dull pink, while the periphery is grayish and opaque. In some places the entire lobule has this latter appearance. The gall bladder is small, contains a few cc. of thick, dark brown bile. The gall ducts are patent throughout, but contain some mucoids.

**Pancreas:** This is of normal consistency. The lobulations are distinct. On section, the center is somewhat pink but otherwise seems quite normal. The ducts are patent.

**Kidneys:** These weigh 500 grams. The left kidney is large, measuring  $13\frac{1}{2} \times 7\frac{1}{2} \times 5\frac{1}{2}$  cm. The fetal lobulation is prominent. The capsule strips easily, leaving a pale pinkish-yellow surface on which the stellate veins are quite prominent. On section, the cortex is thickened, averaging about 8 mm. The striations are much obscured, and the glomeruli are rarely to be made out. The color is pale, pinkish-yellow. The pyramids are somewhat more pink, especially the zone about the periphery. The right kidney resembles the left.

**Bladder:** This is small, contains a small amount of cloudy urine. Extending in from the internal sphincter over the trigone, the mucosa has lost its gloss and is covered by a delicate fibrinous exudate. At the internal sphincter, there is marked injection; and the exudation and injection is marked in the urethra.

**Genitalia:** The mucosa of the vagina is covered by a fairly dense fibrino-purulent exudate. The cavity of the uterus is filled with a mucopurulent exudate. The surface is very irregular and of varying color, large yellow sloughs everywhere studding the inflamed endometrium. The muscle is soft and flabby, and very pale gray in color. The uterus seems of normal size. The tubes are filled by a purulent exudate. The mucosa is thickened and injected. The fimbriae are reddened. Ovaries are somewhat of a pale gray color and soft on section.

**Aorta:** This is smooth and elastic throughout.

**Thyroid:** This seems slightly enlarged. This is more especially true of the isthmus, which measures fully  $1\frac{1}{2}$  cm. in thickness. It seems, however, of normal consistency. Two parathyroids are found. Esophagus and trachea are normal.

*Microscopical notes*—Heart muscle: Epicardium is covered by a thick ragged fibrinous exudate through which a few polymorphonuclear leukocytes are scattered. The muscle fibers are everywhere separated by engorged capillaries; and here and there, there is a slight serous extravasation between them. Otherwise they are quite normal.

**Lungs:** The pleural surfaces are covered by a layer of fibrin of varying thickness, through which blood cells are sparsely scattered. Below this exudate the pleural substance is infiltrated by serum and leukocytes.

The alveolar walls everywhere stand out prominently, and are engorged. The alveolar spaces show a patchy irregular consolidation, in some places containing only serum, in others few red cells and fibrin, in others packed closely with leukocytes mostly polymorphonuclears, red cells, endothelial cells, fibrin and serum. The bronchi likewise contain considerable serum and blood cells.

**Spleen:** On capsule there is a slight cellular exudate of red cells and leukocytes, with considerable serum. The splenic architecture is almost obliterated by the marked engorgement of the venous spaces. The Malpighian corpuscles are irregular and diffuse, due to the infiltration of serum between the cells, while they show numerous large cells with two or more nuclei in their centers.

**Liver:** This shows a marked zonal necrosis extending from the central vein for a variable distance usually through the middle zone, but in no place definitely involving the periphery zone. In these necrotic areas, the liver cells are shrunken, stain with eosin, and in some places are broken into fragments. Others show vacuoles in their protoplasm which are fat globules. The portal spaces are dilated, and contain considerable blood and remains of liver cells. The liver cells in the periphery of the lobule are large, granular and contain some fat.

**Pancreas:** Shows slight postmortem digestion.

**Kidney:** Capsule is delicate. There is a spotted increase in connective tissue through the cortex. The vessels are engorged through the cortex and pyramids. The convoluted tubules are dilated generally; their epithelium is nowhere normal. Everywhere there are small fat droplets near the basement membrane. All through, areas show where the cells have changed to vacuoles, and give a granular debris and some large droplets. The glomeruli show increase in fibrous tissue.

**Thyroid:** Alveolar spaces markedly dilated, with thin walls lined by flat epithelium. Several at times communicate. There are few lymphocytes in the walls, and there is a marked increase in colloid.

**Tubes:** Lumen slightly dilated. The villi are engorged, their fibrous tissue increased and infiltrated with leukocytes. The epithelium is desquamated, in many places lying free in the lumen, with polymorphonuclear leukocytes in small numbers. The muscularis is infiltrated with serum, its fibers spread apart, and here and there leukocytes are found. The vessels in the peritubular tissue are engorged, and in the connective tissue of the broad ligment there is a marked leukocytic infiltration.

**Uterus:** This shows a ragged endometrium, in some places covered by a single layer of low epithelium. In other areas, the ragged infiltrated intertubular tissue is exposed. The glands which remain have a high cylindrical epithelium well preserved, and the lumina contain a granular detritus and leukocytes in varying numbers. The intertubular tissue is markedly infiltrated with leukocytes and serum, as is also the muscularis. The blood vessels throughout are engorged. No wall of leukocytes is made out. The serous coat has a slight fibrinous exudate covering it.

**Bacteriological:** Smears from the aortic vegetations, pericardial and pleural fluids, from tubes, and endometrium, show the biscuit-shaped



diplococci of Neisser. These were also found, but in small numbers, in the consolidated areas in the lungs. Also found in the sinus at the hip, but probably this was contaminated by vaginal discharge. No acid-fast organisms found.

Case II. A. K., white, aged 23, was admitted to Lakeside Hospital August 28, 1909, with the complaint of chills and fever following childbirth. As she spoke no English, and was quite toxic, no satisfactory history could be obtained.

She had been delivered of an eighth month, stillborn child four days before her admission to the ward. For two days following the labor there had been rather severe uterine hemorrhage. At the end of that time there was a severe chill, following which she seemed to "burn up." Chills and fever had succeeded each other for the two days previous to her entering the hospital.

On examination, she appeared very anemic. The chest presented no abnormalities except a faint systolic blowing murmur at the cardiac apex. The heart area was not enlarged. The abdomen was everywhere soft, and showed not the least distention. Nor was there abdominal tenderness, except that the fundus of the uterus was somewhat sensitive. The uterus was soft, and extended up almost to the umbilicus. There was considerable very foul and bloody lochial discharge. The temperature on admission was  $104^{\circ}$ , and the pulse 118. Leukocytes were 19,000.

At first, the patient absolutely refused to permit any treatment or manipulation; and not even a douche could be given the first day. There were two very severe chills the day of admission; and following the second, the temperature went to the extraordinary height of  $107.8^{\circ}$ . For three days the temperature had two maxima daily, and daily went above  $107^{\circ}$ . The chills were of almost hourly occurrence during this time. By the third day, her confidence was so far won that a blood-culture could be taken. This proved sterile. A cervical culture was also obtained, and the gonococcus was the only organism isolated. At the same time, an intra-uterine douche of boracic and saline solutions was given. A large quantity of foul bloody discharge and necrotic shreds was thus removed. On vaginal examination at this time, a small left tubo-ovarian mass was felt, which later disappeared. Otherwise, the pelvis appeared to be normal.

After the daily intra-uterine douches had been started, the chills came usually but once in 24 hours, and the temperature stayed below 106°. There were remarkable subnormal temperatures seen between maxima, for example, a fall from 107° to 97° in six hours. There was a bradycardia when the temperature was not excessive, the pulse running about 60 to 68. The bowels moved fairly well.

The temperature curve, the condition of the patient, and the absence of any localized pus accumulation that could be demonstrated, led to a diagnosis of pelvic venous thrombosis. Operation for the excision of the thrombosed vessels was refused.

On the twenty-fourth day of her stay in the hospital, she developed a patch of pleurisy over the lower right axilla. This quieted down, but flared up again more severely on the thirty-sixth day. After that, her condition steadily improved with simply the douches and fresh air and tonics. It was, however, 52 days after the onset of her illness before she passed a day with her temperature continuously at normal. In all, she was 83 days in the hospital; but at discharge appeared quite well, the pelvic organs being in good condition at that time.

The striking features about this case to those who saw the patient daily were: first, the remarkable fluctuations and great height of the temperature; second, the fact that a gonococcus from the lochia was the only organism that could be isolated in the entire course of the disease; and third, the favorable result in the case of one who was so desperately ill.

It was while working under Dr. J. W. Williams at Johns Hopkins that the first of the two cases was observed, and while under Dr. Hunter Robb at Lakeside that the second was seen; and I wish to thank these gentlemen for their kindness in granting me permission to report the cases. I also wish to thank Dr. M. C. Winternitz of Johns Hopkins for the notes of the autopsy examination he conducted upon the first case.

#### BIBLIOGRAPHY.

1. Ahlfeld: *Lehrbuch der Geburtshilfe*, p. 557.
2. Baumm: *Cent. f. Gyn.*, 1899, No. 11, p. 289.
3. Bumm: *Veits' Handbuch der Gynekologie*, Band 1.
4. Cumston: *Amer. Jour. of Obstet.*, Vol. 40, p. 433.
5. Davis: *Amer. Textbook of Obstet.*



6. Dulton: Med. Press and Circ., London, 1909, n. s., Vol. LXXXVIII, p. 36.
7. Guérin-Valmale: Montpel. méd., 1903, XVII, 352-354.
8. Hallé: Thèse de Paris, 1898.
9. Harris and Dabney: Bull. J. H. H., 1901, XII, 68-76.
10. Himmelheber: Med. Klin., Berlin, 1907, III, 769-771.
11. Krause: Berlin klin. Wochschr., 1904, No. 13.
12. Kronig: Cent. f. Gyn., 1893, p. 157.
13. Leopold: Cent. f. Gyn., 1893, p. 675.
14. Little: Amer. Jour. Obstet., Dec., 1905.
15. Mayer: Monats f. Geb. u. Gyn., 1907.
16. McDonald: Albany Med. Ann., 1907, 906-909.  
Postgraduate, N. Y., 1907, XXII, 1007-1010.  
Annals of Surgery, Feb., 1907.
17. Olshausen: Cent. f. Gyn., 1899, No. 1.
18. Prochaska: Deut. Arch. f. klin. Med., 1905.
19. Rosenberg: Amer. Jour. Obstet., Vol. 39, p. 307.
20. Runge: Geburtshilfe, p. 547.
21. Sanger: Verhandl. d. Deutsch Ges. f. Gyn., 1886, 177.
22. Stone and McDonald: Surg., Gyn. and Obstet., Feb., 1906.
23. Strassman: Anleitung zur aseptischen Geburts., p. 152.
24. Taussig: Amer. Gyn., N. Y., 1903, 334-345.
25. Thayer and Lazear: Jour. Exp. Med., Jan., 1899.
26. Torggler: Münch med. Woch., 1899, p. 690.
27. Tarnier and Budlin: Traite de l'art d'accouchement, Vol. 4, p. 603.
28. v. Steinbuchel: Wein. klin. Wochenschr., 1892, No. 21.
29. Wertheim: Verhandl. der Deutsch Gesellsch. f. Gyn., 1895.  
Arch. f. Gyn., Band 41, Heft 1.
30. Williams: Pract. of Obstet., Amer. Authors, p. 608 (third edition).
31. Wynn: Münch Med. Woch., 1905, No. 18.

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### The Charities Clearing House, in Its Relation to Dispensary and Hospital Abuse.

By EUGENE C. FOSTER, Superintendent of the Associated Charities,  
Cleveland.

Charity organization societies are established in accord with the cooperative spirit of the age. These are days of co-operation—but cooperation which is not systematic is not effective. In presenting to you tonight the function of our organization and that of the Charities Clearing House, in its relation to dispensary and hospital abuse, I hope we may become better acquainted and therefore more helpful in aiding the less fortunate.

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*Read before the Academy of Medicine of Cleveland, October 13, 1911.*

The men and women of sound body can usually care for themselves, and do not become dependent; but after a physical breakdown, it is so easy to lose the power of self care and self respect, and it is with these that the charity agents and the physicians have to deal in common.

The opportunities to the physician for both personal and public service are indeed great, but as the patient and the home need the physician and charity agent, so do the physician and charity agent need each other. The physician, with his knowledge of the physical condition of the family, and the agent, with her acquaintance with the social condition, can together help to bring the subnormal family to a normal condition, but each working separately will avail little.

As strength and health return, so will the earning capacity and efficiency of the family increase, and the charity agent may help make the physician's care more effective by standing by the family during the period of convalescence. She must see that the patient does not return to the same condition which brought on the breakdown, she must see that the family does not return to the old way of living, which brought disease and destitution to the home.

These people you meet in your dispensaries need more than medical or surgical care, and to the patient and physician who treats him, the follow up work in the home is as important as the treatment prescribed.

Dr. Richard C. Cabot of the Massachusetts General Hospital, where social service has had such growth and success, says that "Hospital dispensaries are places of assorted miseries of mind, body and estate." To treat the body and leave the mind burdened with the home care, or the home still breeding disease, is no better than giving a beggar a dime or a meal, after which he must beg again. When you find a man diseased because of his occupation, and find his son employed in the same business, you have but finished half the job in treating the man. There should be some one to take the steps to lessen the danger to that boy and to the others working with him.

The conservation of health is surely more important than the treatment of those who are ill, and this Academy, and the national organization which you represent, has found, I believe, its finest expression in this very service. If your dis-



dispensaries have their social service department and trained workers to do this work in the homes, this means that other charitable agencies in the community are working with you, but if you have no such department, should not the agent of the Associated Charities represent you in the home?

There is also another phase of this situation: If you find that 50% of these patients receiving your dispensary care, are unable to provide for themselves this service and the necessary medicine or surgical appliances prescribed, how about the other 50% who are being dealt with, and who can afford to pay for their service?

In all our dealings with these people, we must consider not only the seen but the unseen results, for often where the seen results are good, the unseen results are very bad. If free medical service without investigation has a tendency to make it possible for a family to exist on a lower wage, and if the well-being of a community depends upon the working people receiving wages high enough to live comfortably and decently, then surely no such aid to the few can ever make up for the injury to the many, which the lowering of wages effects. Then too, what effect must it have on the mind and character of a hard working man who supports his family and pays his doctor's bill, when he sees his shiftless neighbor and his children receiving expert treatment which the hard working man feels he cannot afford?

The trouble with indiscriminate giving of service without investigation, is that it prevents people from making the exertion necessary for their own support, and it does not care for them permanently, only giving them the care for today and making no provision for the care of tomorrow, or to ward off coming ills.

The development of your profession is teaching that it is of little use to weed out the cases of contagion, and disease, in the homes of the poor, unless there is planted therein a desire to keep them out, and an opportunity to live so these lives and homes are not thrown open to every contamination.

The opportunity of the medical profession in safeguarding the lives of people that they need not become dependent, requiring institutional care, or the care of the agent in the home, is the greatest charity and a contribution to a life and

to a community with which no other charity is to be compared.

In this the charity agent can lend her help, for you must often question of what avail is a diagnosis with no means to carry out the treatment prescribed. It may be that the patient has no means to procure the necessary medicines or surgical appliances; it may be the temporary care of children in the home which is needed, while the mother submits to the necessary operation, or it may be a change of occupation for the patient who is losing strength and courage in his present environment, or it may be a change in his housing condition. And if this cooperation between the advising physician and the charity agent can avoid a complete breakdown and the deterioration or destruction of a home, how much more satisfactory to get together in this work now than to try to care for the family after the break comes.

Therefore, in order that any measure of cooperation between social organizations may be possible, it is imperative that each be informed as to where and how the others are touching its concrete problems. The Charities Clearing House was installed to this end.

The Charities Clearing House is an index indicating where information may be found. This clearing house is located at the office of the Associated Charities and is supported by them. It exists primarily for the benefit of the poor and unfortunate. Its objects are to bring about a fuller knowledge and a more complete understanding between the various agencies and further their efficiency and harmonious cooperation; to protect the family from unnecessary investigation and the public from continued imposition; to carry on the philanthropic work of the city so systematically that there will be no overlapping with consequent waste of time, effort and money. In a city of this size, with its rapid growth and many social agencies the need of a central registration is obvious.

This Clearing House was established in January, 1910. It consists of a card file containing only identifying information concerning families, and the names of organizations interested in these families. Printed blanks are furnished to the registering agency, which fills out a blank for each family and sends it to the Clearing House. If a family is already regis-



tered, a report is returned, with the name or names of organizations already interested in this particular family. These reports are mailed promptly, but if immediate report is desired, it is given over the telephone.

Let me illustrate how this may help: Our organization was dealing with a young man who had been injured in a fire in a private house. The owner of the house was willing to meet the expense of adequate medical care, and provided for his lodgings. She made all proper arrangements for the same, except that she gave the money direct to the patient. The patient used the money for drink and had his care at a dispensary. Our organization corresponded with the young man's parents in Buffalo, and his brother came here to take him home, but on the brother's arrival the patient could not be found. Some three weeks later the patient appeared at our lodging house, after free care at still another hospital. If investigation had been made at the time of the young man's application at dispensary No. 1, the service there would have been unnecessary, and if the hospital which gave the three weeks care had reported to the Clearing House and learned the experience of dispensary No. 1, the bed that patient occupied could have been at the disposal of a Cleveland resident, who had no family and brother to provide care. There is no charity money or charity service to waste.

Another instance is that of a cook in a good home, who was attending two dispensaries at one time, and taking two prescriptions of medicine meanwhile. Another instance is where the mother of a sick child was advising with the dispensary regularly, but paying for weekly treatment to an ancient crone who mumbling incantations, passed her hands over the limbs of the child, advising discontinuance of dispensary care.

Thirty different organizations are now making use of the Clearing House, and several others are contemplating it. There are more than 30,000 families registered in this file at the present time. The last census reported between 120,000 and 130,000 families residing in Cleveland. That one-fourth of these families are seeking help and advice makes it necessary that the closest cooperation exist, that each may receive the attention most needed, and that none suffer because of

the duplication of care, to the few who are inclined to make the rounds of all these agencies.

This Clearing House is not a list of people in disrepute, but people who are in trouble, and if the private physician or dispensary finds these people known to the Associated Charities, Department of Public Charities, and some correctional agency, it is perhaps safe to conjecture that they cannot afford to pay for a physician's service, but a conference with a representative from each of these organizations interested will be more satisfactory and give you the facts of the situation.

The longer acquaintance with the family which the coin-terested agency may have had will not only assist in advising of the family's resources and ability to provide for themselves the doctor's care, but it will often know how many others have tried the same plan of treatment you propose, and perhaps failed because the patient will not do his part. That broader view which continued acquaintance in the home conditions must give can surely be of benefit to any agency interested in any individual or phase in that particular family life.

May I emphasize here the importance of the physician's report to us. In your busy lives, with the constantly increasing demands which come to the professional man who succeeds, it is no doubt a burden to report in detail to the agent who is dealing with your patient, but she must know the facts—the patient does not always give them—he may not always understand. The foreign people with their dread of hospitals and institutions too often imagine that their ills and bodies are sought by us all for experimental use only.

Since we deal with the fruits of defective conditions, as do you and since it is reported that in one large hospital, 50% of the patients investigated by the New York Charity Organization Society were found to be able to pay for their medical attention, should we not make the best use of the facilities the community offers us for more efficient service to those who need, more careful thought to the danger of pauperizing those who are not in need, and for the safeguarding of your profession that it may receive its proper compensation for its continued thrift and development.



## A Study of Dispensary Practice With Suggestions for its Control.

By FREDERICK C. HERRICK, M. D., Assistant Surgeon Charity Hospital, Associate In Surgery Western Reserve, University, Cleveland.

It has been said that there is a dispensary evil; that an institution primarily established for the charitable care of indigent sick, cares for the well-to-do and able-to-pay as well; that thousands of patients, who should pay their family physicians, receive free treatment; that people actually owning rented property or a thriving business, a corner grocery, a meat shop, a notion store, etc., pass themselves off successfully as worthy of medical charity; that families in which two, three or four members contribute by their labor to their support and are in very comfortable circumstances receive free care; that unmarried men or women, earning a good living, are treated without charge and often for disease contracted as a result of their own immorality; that physicians beginning practice or practicing among the laboring classes are greatly wronged thereby; and that thousands of patients, who should justly pay for what they receive and thereby contribute to the support of professional work necessary to the community, save their money or spend it elsewhere, receive free medical treatment and leave the neighborhood physician with much less work and a smaller income than is justly his. It is further charged that the appointments to these dispensary positions are made by a small circle of medical men; that they are stepping stones to coveted hospital and college positions; that these men in charge of dispensary work send patients, able to pay, to their own offices for private work; that even in some cases a printed list of the visiting dispensary men is given to such patients on application; that in fact the whole dispensary system in Cleveland is one of unworthy charity, favoritism, and unjust advantage for a few physicians over the many.

These charges are in a large part true. The extenuating circumstances are: the need of charity; the rapid growth of the city, during which time many institutions have been left to do their work without any special organization or correlation with others of similar nature; the need of clinical

material for teaching purposes and the zeal for scientific work by a growing group of medical men.

It is, however, high time that some system is brought from this chaos; that worthy charity cases receive charity, that some means be arranged for finding out the impostors and those able to pay; and that these be either sent to a physician or some adequate scheme of State or city insurance be established to care for them. Let us examine this dispensary situation from the standpoint of those most interested, i. e. the patients, the practitioner, the hospital, the medical college and the public at large.

From the standpoint of the patients. Why do they come to the dispensary for treatment? About one-third of those coming to Charity Hospital Dispensary are worthy poor who cannot pay a physician. One-half although able to pay came because they can get free treatment. This class of impostors is 67% Jewish. Of course it is understood that Charity Hospital, of which I especially speak, is situated in a strongly Jewish section of the city: of all patients treated in its free dispensary 60% are Jewish. They are the hardest to apprehend and it is impossible to do so without a careful investigation, visiting their neighborhood, homes, etc. Mr. Jackson of the medical school, who did some of this work for me, was baffled time and again; by all means of questions and ruses he was frequently unable to determine whether the person in question was poverty stricken or "bluffing"; again by a visit to the home, the apparent signs of thrift showed up the true conditions at once. How to systematically apprehend these impostors is the vital point of the dispensary evil so far as the practitioner is concerned.

There is a third group between these two composed of many who have steady employment but at such a wage that the necessities of life alone can be bought and a medical fee cannot be paid. The fact of a family having a steady income is no reason for its being able to meet all expenses attendant upon its living. Many families are too large, or have other dependents, so that sickness adds an impossible burden. In case of sickness in the wage earners of a family, even if there be a moderate savings account, they should be eligible to free medical care if they so desire, for many are the families which, with completely exhausted means from medical bills, have



come upon the city charities for their entire support. Again, both in the care of individuals and the heads of families, it frequently developed during our questions that they had employed a physician, paid his fee until their money was gone and then were compelled to seek charity at the dispensary. This state of affairs has occurred so frequently that it has been the topic of much discussion. Many such patients should have been permitted free care before their money was gone.

That such men daily practice medicine who, when a patient has paid his last cent, desert him perhaps in a serious condition is a blot on medical practice. Such men are the commercialists and charlatans who call themselves physicians, make a show of medical care and when they have impoverished their patient, even of that with which to buy the necessities of life, leave him to seek charity where he will. If we had some sure means of finding out such men they should be ostracised from the profession. Another group of patients is composed of those who have had friends in the hospital or dispensary, or having heard of the institution, believe they will receive the best of care, especially when perhaps they have had unsatisfactory results elsewhere. Such patients come from all parts of the city and neighboring towns, as they do to other hospitals in any large community. If such patients are able to pay they might return to their physician with a diagnosis and suggestions as to treatment. But here again the difficulty of determining the impostors is apparent.

It certainly would be entirely outside the sphere of professional ethics for the hospital or dispensary, especially if associated with a medical college, to present the patient with the names and addresses of its visiting staff. In doing so a hospital or dispensary staff is overlooking its greatest function to the medical profession, i. e., that of instructor, pointing the way to the best medical treatment and assisting the less fortunate in the profession. A combination of these two factors, the saving of expense and the belief that the best care is found at a hospital, supplies the cause of imposition.

There is, however, one other reason. The tremendous foreign born population of Cleveland has been in the habit in its native land of being treated at the "Ambulatorium" or free "Klinik" of some large hospital. They fall naturally into the same habit here. One brings another; sometimes an

interpreter comes with half a dozen patients; and when, having been in this country a short time they earn good wages and live on very little, they continue the habit.

From the standpoint of the practitioner. There is no question but that he suffers a great wrong under the present dispensary practice. The fees which thousands of dispensary patients are able to, and should, pay to individual practitioners would render the latter's income much more commensurate with the increased cost of living and would give more time for reading and better work. If it can be said justly that patients receive better care at hospital dispensaries than from busy practitioners, this can be accounted for by small fees, the necessarily short time given to each patient, and by insufficient equipment from the same cause. A physician cannot be expected to make a blood examination, have a radiograph taken, chemical analyses made, etc. for one or two dollars a visit, neither can he spend as much time at study or reading on such cases as he would like to do. If the 10,000 patients able to pay a physician who came to Charity Hospital Dispensary last year had paid one dollar a visit, this \$10,000, I venture to say, would have added quite materially to the income of many a struggling practitioner. Were the same principle carried out in other still larger dispensaries there would be no dispensary abuse.

The practitioner must, however, fully realize the fact that medical and surgical practice have advanced with great strides, that all classes of the laity fully appreciate this and that the man who does not give his patients a complete physical examination is sure to see them one by one going where they will receive that careful handling. They may go to another practitioner or they may go to a dispensary, especially to one associated with a large hospital and medical college, but they will surely go where special attention is given to each individual case.

The medical college and the free dispensary. Clinical material is essential for the training of the modern physician. It is this necessity which prompts upwards of 60 physicians to spend one to three hours daily in arduous work, often trying in the extreme, in the study of dispensary cases. These cases are well examined, demonstrated to medical students and given the best of treatment. They surrender privacy for



free treatment. The physician in charge comes to take pride in the growth and efficiency of his department and in the experience and better understanding of disease which he gains in return for his time. However disparaging to human ideals it may be, yet it is safe to say that had the growth or efficiency of dispensaries depended upon charity alone or the necessity for State care of its sick, these institutions would have done far less work than is the case.

The average patient is flattered by hearing a discussion of his case. He soon sees that such discussion is for his own benefit and that his treatment at the hands of a student under instruction brings him excellent results. To this method of teaching, as well as to the spirit of scientific observation and research, is due a large part of the present day dispensary growth. The medical college is therefore a large beneficiary in this growth. It should bear a proportionate part of the expense of determining the impostors from the worthy poor.

The hospital and the free dispensary. This depends very largely upon the location, object and size of the hospital. One located in a densely populated, poor district can care for many patients in a well organized dispensary which otherwise would require care in the wards. Such a department, through which charity patients are admitted to the hospital and to which they return for necessary after-treatment, saves money and beds and is essential to every large hospital. Charity Hospital is located in a district of dense Jewish population from which it draws 60% of its attendance.

A few figures may be of interest in this relation. Of 186 patients investigated 59% were Jews. Of the 40% who were worthy of free care 47% were Jews. Of the 53% who were able to pay a physician 67% were Jews.

If the dispensary material is used as a clinic for teaching purposes and, as is the inevitable result, increases greatly in volume, it becomes a burden to the hospital unless assistance in its support is rendered. An endowment or special donation for its support becomes necessary.

The dispensary and the community at large. It is, beyond a doubt, both the city's duty and to its best interest to care for its sick poor. The care of the sick laborer, the protection thereby from unnecessary burden upon his family and prevention of communication of his disease to others is a part of city

government. As a corollary to this it is also the city's duty to see that this charity is not imposed upon; that men able to work are not living at the expense of the community and that those able to pay for medical care are not receiving it for nothing. This is somewhat of an ideal conception and city government today cannot be said to have reached the ideal stage; yet it would seem that with the present betterment in city government and with that improvement which is bound to result from the activity of the present well organized and well administered health department here in Cleveland, with the Academy of Medicine actively interested in the city's health, that steps might be taken towards a solution of the problem.

It is estimated in Chicago that  $\frac{1}{2}$  to 1% of the city's population is in need of charity. On this basis Charity Hospital Dispensary alone cared for the 6,000 charity patients of this entire city last year. To the city belongs a part of the burden of finding out these impostors.

The foregoing has been a frank opinion regarding the dispensary situation. We have recognized the evil for several years and have striven to correct it. At Charity Hospital we have no money to pay for daily investigation of the patients' financial conditions. Yet on an average we have, in the surgical department alone, refused treatment to two or three patients daily. We have definite evidence of specific cases which, thus turned away by us, have gone to other dispensaries and received free care. No doubt we ourselves have in turn unintentionally received such from other dispensaries.

We have repeatedly sent patients able to pay to physicians in their neighborhood. We have occasionally sent such patients to the office of a member of the dispensary staff.

We have all been repeatedly asked for our office address and hours. Occasionally we have given it to the patient asking. We have never had a list of dispensary visitants for patients' use. If patients were suspected of being able to pay they were sent away forthwith.

In the busy two or three hours of dispensary work it is impossible for those working in the different dispensary departments to find out these impostors. There should be a special department in every dispensary service for this purpose. Such a department requires money to run it. Lakeside



Dispensary has such a department and this dispensary as we all know is well endowed to meet this extra expense. We have heard tonight of the valuable work which the Associated Charities through its clearing house is able to do. However, the Associated Charities cannot at present guarantee to look up the worthiness of all cases of which they have no record. This association during the past summer has been of very great assistance in this work. It was, however, able to tell us only whether or not a patient had received aid from other charities but could not decide upon the worthiness of that patient for charity. This is of course the most necessary point.

Of the 186 patients submitted to the Clearing House for comment but 45 were known to it. It could be most economically accomplished through this association by means of a few extra investigators or visiting nurses. This work cannot be expected of the Associated Charities, in addition to its other valuable services to the city, unless material assistance comes with the request.

In brief, then, the main cause of the present dispensary abuse is an entire lack of organization with some central bureau of investigation for finding out the impostors. With the present heterogeneous scattering of dispensaries in different parts of the city this would be a difficult arrangement to bring about.

The expense attendant thereon may be met through the Associated Charities, which seems most feasible. Additional assistance, however, must be given to that organization. It is evident from the foregoing that this extra burden should be carried by the following:

1. The city should pay its part. If sufficient influence could be brought, this duty would fall to the Health Department or the Board of Public Service. Either would be able to accomplish the results. Certainly the care of the ambulatory sick poor with the exclusion of all others is a public service of no mean proportions.

2. Inasmuch as the medical college has the use of the large clinical material in the two largest of the city's dispensaries it should take measures to exclude from these two dispensaries at least all those able to pay. The college might make these dispensaries, instead of agents to take away practice from its graduates, a means of further instruction, con-

sultation and assistance to them and at the same time very materially raise the standard of medical practice. It is apparent that there has been quite a short sighted policy pursued for certainly this injustice has been not only winked at but actually invited.

3. The public at large through the Associated Charities should be brought to appreciate the importance of this new arrangement and realize its value to the city.

There certainly are many of sufficient public spirit and charity to assist, as they have continually done in other true charities.

From the patients it has been the custom to collect a nominal fee of ten cents for dressings or medicines. This should be continued when possible being careful, however, not to drive away cases of destitute poverty by so doing, for cases have come to my notice of patients staying away because they were unable to pay this small charge. Real poverty and pride are often close companions: it is better that ten unworthy patients be treated free than that the primary object of charity be lost.

This attempt to organize the present distinct dispensary systems is a difficult one and I would not consider my work tonight finished unless I suggested what seems to be an ideal arrangement.

One central dispensary to which the poor may come for treatment, and an emergency city hospital adjoining this dispensary. Cleveland covers a very large area, therefore it might be necessary to establish four or six smaller dispensaries such as in the Newburgh, the Woodland and Kinsman, the St. Clair districts, etc. All cases which might require hospital care should be sent to it through the central dispensary. Local men could be interested in these lesser dispensaries; the district physicians would be greatly assisted in their work by them. To visiting nurses or to separate investigators, whichever seemed more feasible, could be given the work of determining a patient's worthiness for charity. Impostors and those able to pay could be readily detected and refused free treatment. This work seems to me to come before any attempt at health insurance of the better classes because it starts with the city's duty, the care of the lowest, and it seeks justly to lessen dependency and to better the practitioner's condition



by detecting fraud. Such a large central clinic would be far more valuable for teaching purposes than the present arrangement. Lesser hospital dispensaries should be closed except for the aftertreatment of their own hospital patients. This scheme I recognize as utopian and yet it is the ideal toward which we must work. A centrally located city hospital has been recognized as a great necessity for several years. What better opportunity is there for still further urging its construction?

As suggestions for immediate activity on the part of the committee having this matter in charge, the following three points should be urged in order that some definite progress may be accomplished by this agitation.

First. Inasmuch as the largest dispensaries in Cleveland are labeled by the sign in front as "Dispensary" or "Free Dispensary" without qualification as to the special class they seek to reach, there should be added to these signs, "For the Sick Poor," or some such words, that people may know the institution is not one for indiscriminate free care of all who present themselves, whether able to pay or not, but is solely for the *poor*. It has occasionally happened that when a person learned this fact he or she was perfectly willing to go to some practitioner.

Second. Each dispensary should have the services of a charity worker whose duty should be the questioning of all new patients, looking them up in the Associated Charities Clearing House and, if no definite evidence as to their worthiness is on record, tracing them to their homes and deciding on this point.

Third. Each dispensary should have an alphabetical list of the practitioners of the city arranged in districts, each district represented by a card on which is printed the names and addresses of physicians in that district, belonging to the Academy of Medicine. These districts should be fairly small, should be residence sections of the city and their location should be well understood by the charity workers in the dispensaries.

When a patient able to pay a physician presents himself at a free dispensary he should be told to go to a physician, and be given the card containing the names of the physicians in the district in which he lives. This card should contain a short statement that the dispensary is for the care of the poor only.

By this means such patients would be placed in their proper relations to the medical profession. Should they then wish a further choice of a physician, that is of course their privilege. The cost of these district cards should be born by the Academy or by special assessment on its members, for it is they who are benefited.

To the Academy of Medicine belongs the correction of this injustice to its members. Such an association is a mere name if it does not uphold the rights of the medical fraternity.

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### The Sources of Dispensary Abuse.

By A. R. WARNER, M. D., Assistant Superintendent of Lakeside Hospital, Cleveland.

To speak of "Dispensary Abuses"—and of late this phrase is often heard—implies the existence of an ideal dispensary, or at least some idea of what a proper efficient dispensary should be. I will describe first what I understand to be the ideal, efficient, just, helpful dispensary, and then tell you how I see that ideal abused.

Dispensaries have three sources, from municipal maintenance, from benevolence, and from science or a university. The municipal dispensary must necessarily be subject to the same vicissitudes as the municipal hospital; the purely benevolent dispensary fails to attract the best medical skill, but is of great personal help to the people; the purely university dispensary is more interested in the disease than the patient, and all who come get the very best medical treatment or advice but that is all. The needs of the dispensary patients are so often not confined to purely medical aid, and the demand for everything furnished free so universally exceeds its proper field, that I am convinced that the ideal dispensary is a combination of benevolence, to select and help the worthy poor, and science, to treat their ills. In such a dispensary the admission and discharge of all patients is in charge of one especially interested in sociology, not in active practice and not having the medical care of any patients. To him should be furnished the necessary assistance to determine rapidly and surely the eligibility of each and every applicant for



free treatment and to render the usual helps of organized social service. The medical staff must be progressive, skillful, working for science and not for personal ends. A university alone can command such men. First, last and all the time there must be forthcoming the funds for building, repairs, equipment, and supplies amounting to about 25 cents a visit for each and every patient.

I shall divide the abuses or problems of such a dispensary into four classes, as follows:

I. Abuse of the dispensary by outside doctors.

II. Abuse of outside doctors by dispensary doctors.

III. Abuse of dispensary patients by dispensary doctors and dispensary managers.

IV. Abuse of proper dispensary patients by outside doctors.

I. *Abuse of the dispensary by outside doctors:*

1. By sending patients there and even asking by note that we admit them for the purpose of getting done special work, as radiographs, Wassermann tests, etc., but expecting to hold the cases. The patients realize that they are sent for expert opinions or consultation and that others are getting the same direct and free. The next time they apply to the dispensary direct.

2. Sending tiresome, objectionable, or financially depleted patients to the dispensary to get rid of them. A goodly proportion of our applicants every day have been to private physicians until their money was gone.

3. Sending patients not doing well to the dispensary to prevent their getting into the hands of local rivals. Patients tell us that they have explained to their doctor that they are not getting better and that they should make a change of physicians and that the doctor suggested their going to a dispensary.

4. Expecting and demanding the entire care of patients, scarcely able to pay for emergency calls at the house, when this patient is suffering from some special or chronic condition requiring more than they can pay for. The patients must give up the care that they need, or deprive themselves of the necessities of life to pay for it, or beat the doctor out of his bill, or go to a dispensary and send for some other doctor in the next emergency. They usually choose the last.

## II. *Abuse of outside doctors by dispensary doctors.*

1. Treating of too prosperous people. This is hard to absolutely prevent as the dispensary investigation depends upon the veracity of the applicant, and home investigation, although more reliable, is not available until first aid or the examination of sick cases has been completed.

2. Doing hospital emergency work with dispensary machinery. A hospital must accept emergency cases, but it is not best to treat them in the dispensary in or out of dispensary hours, lest they be tempted to return the next time they are sick. They never fail to see the possibilities of the place.

3. Lack of respect for outside doctors in talking with patients.

4. Giving placebos to neurasthenics as the easiest way to be rid of them after an honest outside doctor has explained to them that they are not sick and has tried to help them.

5. Lack of appreciation of the real work of dispensaries. Using dispensary patients simply to further personal experience with no thought for the welfare of the patients.

6. Keeping cases of scientific interest, regardless of other conditions.

## III. *Abuse of patients by dispensary doctors and managers.*

1. The advice given is sometimes not suited to the patient's condition, and the wiser advice of the home physician, who knows the home conditions, is not appreciated.

2. Limitations—The dispensary cannot come to patients if they are worse or in an emergency, and by misunderstanding of the proper relations between the dispensary and home doctor, the dispensary holds the patient too long before suggesting that a physician be called to the home.

3. Treatment from the standpoint of the specialties.

4. No grading of patients, or way to adjust services to needs. No attempt to encourage return to self-support.

## IV. *Abuse of proper dispensary patients by outside doctors.*

1. Not ascertaining the financial condition of the patient and charging his regular fee or nothing; one is often as bad as the other.

2. Giving usual directions which either are not understood



or cannot be followed owing to lack of opportunity or funds.

3. Treatment by medical institutes and other quacks, fak-ers or grafters.

4. Unconsciously and carelessly taking the last dollar from a patient, then blaming the dispensary for the loss of this patient.

5. Guaranteeing a cure for a stated sum. Many times the entire resources and credit of the patient are exhausted in raising this amount, and then the cure is not effected. The doctor stands ready to continue his bargain; he is not through trying, but the patient is now without the means to get the meals to take before the medicine.

*Our hopes for future betterment and development.*

1. Grading of admissions into three classes: The first of these should be for this particular illness only. In the second should be classed those whom we cannot reasonably expect to get into better circumstances. These should be admitted to all departments freely. To the third class should be admitted those who may be able to pay for a family doctor in an ordinary emergency illness but, who cannot pay for special or surgical work or for long continued daily treatments. They will be admitted for such treatments only.

2. Recording those facts which justifies admission for inspection and reference.

3. Incorporating the family physician by name into the records, and therefore into professional consideration.

4. Encouraging the reference of the patient, and the findings, back and forth as the needs of the patient require.

5. Supervision of the dispensary and of the admission by a medical officer not in active practice but interested in dispensary work in the hope of keeping before the everchanging staff the ideals and the responsibilities of the position they hold and of preventing every kind of abuse.

6. Better investigation, including home investigation of doubtful cases.

7. A sufficient Social Service Department to know about, to think for, to provide for, to plan for, to teach and to encourage, the fellow down and out, and actually to do the many, many little things for him that help him to comfort and to better times.

### Dispensary Abuse.

#### THE EXPERIENCE OF THE BABIES' DISPENSARY AND HOSPITAL GAINED IN ITS ATTEMPT TO CONTROL THE CLASS OF PATIENTS ASKING FOR ADMITTANCE AND SUGGESTIONS DERIVED FROM THIS EXPERIENCE.

By H. J. GERSTENBERGER, M. D., Cleveland.

The Babies' Dispensary and Hospital of Cleveland was, to my knowledge, the first dispensary in the United States to systematically attempt to classify its patients into those who are in a position to pay for medical care and into those who are not. This principle of preventing pauperization was recognized at the very start of the Dispensary in the old Central Friendly Inn, and has since then until today received our constant attention.

In order to give the members of the Academy a proper basis upon which to judge and criticize our methods, it will be necessary for me briefly to present to you the object and the organization of the Babies' Dispensary and Hospital.

The Babies' Dispensary and Hospital was called into existence during July, 1906, to lower the high infant mortality rate of Cleveland, firstly, by attempting to prevent illness amongst infants by education of their mothers in the nursing and feeding of the infant and in the general hygiene of the family and the home; and secondly, by caring for ill infants. So the Babies' Dispensary, from the beginning, was planned to be rather an agent of preventive medicine than one of curative medicine, and this fact places this dispensary in an entirely different class from the regular medical dispensaries of various hospitals.

Learning from the experience of various countries actively engaged in the reduction of infant mortality, especially Germany, the plan adopted was to make the physical examination of the infant in the dispensary by the physician the basis of the entire work, and what is quite as important, to augment his work by the aid of a nurse, who was not only to assist the physician in the dispensary but mainly act as his representative in the home, with the idea of encouraging the mother to carry out the physician's directions and instructing and supervising her therein. An additional duty, however, was imposed upon the nurse, and I wish to emphasize here, that much more attention was given to this duty than in any institution that I have

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*Read before the Academy of Medicine of Cleveland, October 13, 1911.*



ever visited, here or abroad, namely, to seriously and conscientiously attempt to learn the material circumstances of the family; that is, to know the income, the expenses and the debts of the family and then to form an opinion as to its ability to pay for medical advice. During the first year and a half, this rule was applied to every family, whether the baby was well or ill, but since then, inasmuch as it was observed that the mothers of well infants would laugh at the suggestion to go to the family physician for preventive advice, it was considered proper and just to admit any mother of moderate circumstances, providing, however, that her infant be well.

The attempt to prevent patients, who are in a position to have their children cared for by a practicing physician, from imposing upon the dispensary, has always been made at the very moment the patient applied for admittance at the dispensary. Of course, it was at first not as well carried out as it has been during the past four years and as it can be at present in our new building, which has a room especially planned for such determinations, as you will be able to see from the plan of the building which I shall show you. To my knowledge this is unique.

The routine plan, as it is today carried out at the Central Dispensary and has been since the year 1907, is as follows: As soon as a parent with an ill infant reaches the admitting clerk's desk, his general appearance and bearing are noticed and if there is the slightest suspicion that he is not actually needy, he is rather in an affirmative way asked whether he can afford a family physician. If he answers in the negative and yet to all appearances the contrary is true, he is requested to be seated in another room where the nurse in charge inquires about the income, expenses, debts, size of the family, etc., and so attempts to come to a decision. If after this ceremony the patient still insists that he cannot afford to pay for his physician, the Physician in Charge is called and he follows the same policy. If there is still a difference of opinion the employer is called by telephone and asked to corroborate the statement of the parent. If after all this there is still a justifiable doubt as to the material circumstances of the family, the patient is admitted and cared for and the nurse instructed to attempt elucidation of the facts at her visit to the home, which will occur, according to the

physical condition of the child, within anywhere from 12 hours to a week. This longer interval is simply caused by the large

## NURSE'S REPORT

No. I Name Richesi Jan Address 46 Andes Date July 5/06  
 Name of Father John Occupation Labr Income   
 Name of Mother Mary Occupation  Income   
 Names of family members  Occupation  Income   
Charlie age 13  
Tommy " 12 (1/2) (Leicester)  
Emile " 7  
James " 7 (deaf + dumb)  
Mary " 4 ( " )  
 Material circumstances IV  
 Rent on   
 Charitable aid See from Assoc. Char. Assoc. Char.  
 Sanitary condition of home   
 Are instructions followed: (if not, why?) As far as possible to make mother understand.  
 Ice on ice available Yes  
 Landlord   
 Remarks (x) Father the - unable to work

Fig. 1. Copy of Chart (nurse's history) first used at the Babies' Dispensary, July 6, 1906.

number of patients that each one of the nurses must have on her book, in order to care for those admitted. The data obtained by the nurse at her regular visit to the home can be seen from a copy of the nurse's charts, which I wish to show you. As each nurse reports to the Central Dispensary each day her findings are entered in the chart within 24 hours after she has made them and, in case clear evidence has been obtained to prove that the parents are in a position to pay for medical aid, the chart is stamped according to a routine system which is known to all the workers and which will, if the patient at any later day again attempts to gain admittance, call the attention of the clerk or any nurse or physician to the previous decision, and so exclude him from a second admittance unless he can present sufficient evidence that the conditions in his family budget have really changed for the worse.

A most important part of our routine which has been planned to enable us to keep in touch with the actual medical, nursing and sociological care given each patient, has been the so-called



regular monthly meeting. These meetings are held once each month by the Medical Director or the Physician in Charge to-

Form 7 em 5-11

## NURSE'S REPORT

No. 5281		Name Sherman Annie		Rate R		Date July 18-19		Nurse K. Richards	
Address 2572 E 50th St		No. Rooms 4	Rent \$12.00	Taxes	Cleanliness II	Light I	Ventilation I	Landlord ?	
Name		Character		Occupation		Place of Occupation		Income	
Father Louis		Good		Tailor		Mr Jacobson		Total \$12.00	Partial 0
Mother Ida		For 4 yrs.		Good		Housewife			
B. S.									
B. S.									
B. S.									
B. S.									
B. S.									
Other Sources of Income		Striker's Benefit		Am't of Income \$6.00 per wk					
Material Aid		None							
Medical Aid		Dr Bernstein							
Material Circumstances		I							
Milk Supply		Milkman							
Ice or Ice Box Available		No							
Are Instructions Followed? (If not, Why?)		Yes							
Church		Jewish							

Fig. 2. Copy of nurse's chart in use since 1907.

Ventilation, light and cleanliness: I, excellent; II, good; III, fair; IV, bad.

Material Circumstances: I, well able to pay for medical service; II, doubtful as to ability to pay; III, needy; IV, destitute.

gether with the Superintendent of Nurses or her alternate with one of the nurses doing the regular dispensary and home work. Every nurse, in other words, meets the Medical Director or Physician in Charge in the presence of the Superintendent of Nurses or her alternate once per month. The chart of every patient in her district is presented and a mutual consideration of each individual case is made with the idea of determining whether the patient is receiving adequate attention, whether the cooperation offered by other institutions in the City of Cleveland is being used as it should, whether the patient is following directions and making headway, and whether the families who

have been receiving medical treatment or food free of charge or at a small cost are in better circumstances or not. In other words the entire sociological and medical status of the family is considered at these meetings and in this manner we are able, as we could in no other way, to effect a cooperation with other institutions, and also oftentimes get other organizations to cooperate with us. Besides these monthly meetings in the presence of the Medical Director or Physician in Charge, the nurses meet once a week with the Superintendent of Nurses, who has been in the work since 1907 and who has acquired a judgment of these matters that is of the highest type. At these meetings the nurses present any questions or any difficult cases that may have offered themselves during the past week, and I may say that many of these are questions regarding the worthiness of the family and the policy to be followed in such cases. I wish to add, however, that discussions of doubtful cases are by no means postponed until the weekly or monthly meetings. Each nurse has the privilege at any time to present any question for solution to the Superintendent of Nurses who in turn, if necessary, appeals to the Medical Director or Physician in Charge. So you see there is a systematic and constant attempt to educate every nurse in the employ of the Babies' Dispensary and Hospital in the important work of forming an opinion as to the worthiness or unworthiness of the given family, and there is no doubt that this training, after a certain time—I should say about one year—bears fruit and gives to the Babies' Dispensary and Hospital, nurses who are more qualified to determine the material circumstances of a family than any other group of nurses that I know of.

The description of the work just given refers to that carried on in the Central Dispensary and not to that at the branches. The branches represent the so-called prophylactic babies' dispensaries, in other words they exist to care for well babies only, and therefore, no great stress is laid upon ascertaining the material circumstances at the time of admittance. When the nurse visits the home, however, she inquires as to whether the parents are in a position to pay for medical services or not, in case the child becomes ill. The name of the family physician, his address, etc., are written in the history and in case of illness the patient is referred immediately to him if the parents can



afford to pay for his services; if not, the child is sent to the Central Dispensary.

Now this systematic work has been carried on at the Babies' Dispensary and Hospital since the very beginning, but especially so since the year 1907, and you will be interested to know what percentage of the patients admitted were later discharged on account of good financial circumstances and how many were refused at the first visit to the dispensary.

Total applicants for admission .....	574	1322	1134	1935	3682
Total patients admitted.....	568	1214	1055	1865	3574
Patients admitted but later refused further treatment owing to material circumstances .....	65	123	231	414	266
Patients not accepted owing to material circumstances	6	108	79	70	108
Percentage of applicants not accepted or later refused further treatment .....	12.5%	17.4%	27.3%	25%	10.1%

I believe these figures do show that the Babies' Dispensary and Hospital has been detecting a goodly number of families who have been attempting to obtain treatment when they were not justified in doing so. The drop in the relative number of patients discharged during the year 1911 is due to the fact that during this year many more well cases have been admitted than heretofore. During the past year the names of the patients admitted to the Central Dispensary have been sent to the Charities Clearing House and on the following day we have received a statement giving the names of other charity institutions which have in some way aided this family, that is, to the knowledge of the Clearing House. The data so obtained are then entered in the nurse's chart of the patient. The data obtained from the Charities Clearing House, of course, cannot be of much value to the Babies' Dispensary until the other hospitals using the Clearing House are able to make such investigations as are necessary to give efficient information.

From the statement so far made I think you will agree with me that the Babies' Dispensary and Hospital has seriously attempted to give medical treatment to worthy families only. However, as to whether the decisions arrived at by us are in nearly all cases correct or not, is of course very difficult to say. I know very well that we have erred not only in admitting patients who could afford to pay but who have very wisely and

shrewdly altered the facts, and misrepresented their conditions and in this way beguiled us; at least temporarily and sometimes permanently, but also in refusing to admit the children of parents whom later we found to be worthy. Our policy has been to attempt to be just to both the general practitioner and the patient, but solely upon the basis of the ability of the family to pay for medical advice and not upon the basis of the quality and ability of the physician in whose hands the child would go. We all know that there are many patients who are severely maltreated and that it really ought not to be simply and only a question as to whether the patient can afford to pay for medical advice or not. However, I for one am convinced that it is absolutely impossible for any institution or any individual to act as a judge of physicians, individually or collectively, and that the only hope for the solution of this problem must lie in limiting the number of medical schools and raising the necessary requirements, thus making the acquisition of the physician's diploma more difficult.

In closing I wish to call your attention to the fact that it is very often a most difficult matter indeed, to attempt to separate justly the financially able from the financially unable. It very often is not a question of dollars and cents, as the following examples will show: Family A.—Father and mother and four children all well. Father earning anywhere from 12 to 18 dollars a week, during nine months of the year, paying relatively high rent, eating fish and chicken twice a week, and actually having, after enforced unemployment of one month, no funds at all and a few debts. Family B.—Father, mother and four children. Father getting nine dollars a week for nine months, living economically, saving money and after enforced unemployment of three months having no funds. Both apply at the dispensary for help. Family B gives a truthful story. Family A exaggerates conditions, yet family A is more in debt than family B. Now are both of these families worthy, are neither of them worthy, or is only one worthy? According to the policy carried out by the Babies' Dispensary and Hospital, family B would be helped; family A would not, for the simple reason that they lived extravagantly and that they can, if they must, save enough money to pay a doctor's back bill, whereas, family B lived economically and simply yet cannot, even though the father should be at work, save enough money to pay a physician's legitimate bill. That is, they cannot



do this without going near a point that may be called at least partial starvation, and to my mind this is more than can be reasonably expected.

As to the suggestions that I should make from experience gained at the Babies' Dispensary and Hospital, I should say that every dispensary ought to have a sufficient number of nurses, not only to go into the home to determine the financial circumstances of the family, but also to assist the patient in carrying out the physician's directions. I think this a question of economy of no small importance, for what is the use of permitting a physician to spend his time and energy with a patient in the dispensary and have the patient go home and neglect entirely the directions given him, possibly from sheer ignorance, possibly as a result of misunderstanding. It is, however, most essential and much to be desired that the nurses who are to do this work be women who have had a most rigid training in social work and by that I mean not only the passing of an examination in a course of sociology, but an experience of at least one year in practical work. That today this training is nowhere to be had is a sad fact but I do believe that the day will come when it will be possible to give well educated women the necessary training to equip them with judgment free from sentiment. That the person doing this investigative work should be a nurse with a thorough sociological training rather than a person with a sociological training alone is absolutely clear in my mind.

The sum and substance of my suggestion therefore is that the trustees of hospitals, and the public at large be educated to the realization that the only way to get properly trained and efficient physicians is through the development of high type medical schools and that it is just as necessary to have nurses in the dispensaries, as it is physicians, and that the nurses be enabled to receive proper training fitting them for this work.

*310 Osborn Bldg.*

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### **Prevention of Hospital Abuse.**

By J. C. FOX, M. D., Resident Physician, Cleveland City Hospital.

In bringing before you the City Hospital's method of attempting to dispense charity only where needed, I will speak briefly, first of former methods, which were demonstrated as fail-

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*Read before the Academy of Medicine, Cleveland, October 20, 1911.*

ures, and then of our present method which is clearly successful.

Since the growth of the city has been more rapid than the increase of hospital capacity, we have of necessity been forced to hold our beds for deserving cases only. Cases of interest medically, which of course are tempting, cannot be received unless their proper place is in a charitable institution.

We have not been hindered politically, as the policy of the administration has been always to help us and not to allow anyone, through influence, to obtain hospital care of which he was not deserving.

As an example of the inefficiency of the old method of admittance without thorough investigation in the home, I can cite the situation at the time the Infirmary was moved to Warrensville. At that time and previously, cases were admitted through the City Hall by men who had been in the work for years and had supposedly become proficient, but as they were without the aid of outside investigation we see now they were not. When this move was made, of 825 inmates 225 refused to go and most of these did not at a later date become city charges. Some went to their own homes, some to relatives and some to work: these, rather than go to Warrensville which was distasteful to them, were able to care for themselves, although they were thought by men of experience to be unable to do so.

Since August of 1910 we have had a department of investigation in connection with the hospital administration and this has been a great help. While we have only one investigator, a man trained in sociology, as all those dealing with such conditions should be, he has, through the help of others and by his individual efforts, accomplished much. A man thus qualified can take care of many cases in a day.

As an example of what is accomplished we can say that since August, 1910, about 1220 cases, in which there was some suspicion or some indication of the need of investigation, have been handled in this department. Of these, 90% or 1098 were not admitted. A recent newspaper investigation of our records revealed no cases cared for unnecessarily. It is evident that the plan is practical as the department saves many times the expense of its upkeep. The investigator will go to the individual homes, weed out the undeserving, or better direct their efforts to care



for themselves. If some help is necessary he will see that it is obtained from the proper source, correcting mistakes of charity workers of insufficient training. He will make it possible for the physician to retain many desirable patients, his object being to aid people to live in the home instead of in an institution. Some times when a case must receive outside help this can be more properly supplied than by the hospital, some of these cases can be sent to the Infirmary, some to church homes, some to the Soldiers' Home, some to the workhouse, and many deported, while relatives of some can be found and made to support them. The responsibility is thus placed where it belongs. A simple application for admittance, in person or by telephone, cannot reveal these things.

If I had time I could cite many examples of corrections made. It is not uncommon for an individual desiring care in the City Hospital to go from his own home, where he might remain under fair or good conditions, to surroundings which are poor and from there apply for admittance, thus attempting to deceive us as to the necessity for such help. An experienced charity worker readily recognizes these conditions and with the system as perfect as it now is in Cleveland, with the help of the Clearing House of the Associated Charities, there is no justification or excuse in misplacing dispensations of charity. Ill advised charity wrongly educates the people to expect unneeded aid and favors pauperism: they will not prepare for a rainy day if some one else furnished the umbrella.

The problem to my mind is simple. If any hospital or dispensary wishes to avoid caring for undeserving cases, let them make it someone's business to investigate at their homes all applicants concerning whom there may be any question. The conversion of a small portion of a hospital or dispensary fund to the expense of such work will amount to a financial saving and a betterment of social conditions.

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### Some Facts in the Etiology of the Insanities.

By JOHN D. O'BRIEN, M. D., Canton, Ohio.

Formerly Pathologist and Assistant Physician, Massillon State Hospital.

In the etiology of the insanities the constitutional, or to use a somewhat question-begging term, the hereditary factor,

is admitted on all hands to be of essential importance, and most alienists will endorse to a certain degree the dictum of McPherson—that the difference between the person who may become insane and the person who will not become insane is one of hereditary predisposition.

The origin of those latent defects or tendencies predisposing to insanity, and probably following some natural law of variation, is of course a biological question, but unfortunately unless some other hypothesis be assumed their occurrence at present is not explainable. With regard to the factors which may be called exciting, or perhaps better determining, we are, however, on somewhat surer ground.

Given definite and ascertained constitutional defect, we know that certain bodily illnesses, disturbances and stresses, pregnancy and also certain noxious agents introduced from without, light up insanity in numbers which comparative statistics prove to be fairly comparable proportions within their respective categories.

The knowledge of connection of bodily illness with insanity is of course as old as Hippocrates and has been noted by subsequent writers. The frequent association of fever and frenzy described by Sydenham has been the subject of many treatises, and an enormous amount of literature has grown up concerning the insanities that follow typhoid, influenza, syphilis, etc.

Of late years there has been a steadily accumulating mass of information regarding insanities occurring with known disturbance of metabolism of endogenous origin, as in pellagra, morphinism, alcoholism, etc.

The weight of this mass of information has driven conviction into the minds of most that in poisoning, in some form or another, must be found the general exciting cause of nearly every form of insanity.

Kraepelin, for example, writes that outside the causes of insanity inherent in the central nervous system there are but two, intoxication and exhaustion. The toxic basis of nearly all forms of insanity is a presumption for which there is fairly good foundation and for which an endless number of theories have been advanced.



While there is a general agreement that in most forms of insanity there are to be found disturbances of metabolism, which in some of these forms is undoubtedly due to the development of organisms, either inside the tissues of the body or on the surface of the mucosa, there is a distinct question, first, as to whether the bacterial overgrowth, when present, or the metabolic disorders are the cause of, or only permitted by the psychosis; second, whether the intoxication, however produced, is a specific intoxication, that is, whether or not there can be established any definite relation between nosological form and specificity of pathogenic agent; third, whether the facts warrant any conclusion as to the part played by these agents in the production of the mental disorder.

Investigations carried out in Italy have been prosecuted along the lines of general medical research and it is only in this manner that we can expect to attain any definite knowledge as to the causative factors at work, by examination of the changes in the processes of digestion, assimilation, excretion, changes in the composition of the blood and lastly bacteriological examination of the blood, and tissues and more particularly of the gastro-intestinal tract. The time is not far off when each institution out of necessity will have a trained bacteriologist to study the living body and its disorders, to effect newer methods of treatment and discontinue the examination of bodies dug from the grave in the old orthodox manner.

In the insane generally, it has been found that digestive processes are retarded and at times almost annulled, and according to our autopsy records chronic enteritis is common to some forms of insanity.

With regard to the urinary output, a departure from normal standards is common. A review of our results shows that no particular urinary abnormality can be related to any definite type of mental disorder. Thus, while we find here that the phosphates are increased and indican is commonly increased in melancholia, Jones found the phosphates diminished and Funk found indican present in only 11 out of 44 melancholics. Folin, after a most exhaustive study covering a large number of years and a large number of examinations of urine of the insane, was unable to establish any constant

metabolic irregularity with any particular form of mental disorder; the same intoxication may produce very different forms of psychosis, just as alcohol may produce exhilaration in one person and weeping in another; so may all toxins behave.

Turning to the results of examination of the blood of the insane, it has been claimed that just as outside the insanities certain infective conditions and toxemias are followed by changes in the blood and serum, one being a marked increase in the polymorphonuclear leukocytes, so in the acute insanities these changes occur.

According to Lewis Bruce this hyperleukocytosis is found in acute mania, katatonia, manic-depressive insanity and in different stages of general paralysis. In fact this constant febrile reaction seen in general paralysis associated with a high polymorphonuclear count, is but an indication of the progress the disease is making.

A further and very obvious possibility in all of these cases is the existence of some intercurrent malady to which the blood condition may be due, and whose exclusion has not always been effected by the various authors, judged by their writings. This question as to the cause of blood conditions found in the insane raises the possibility of their bacterial origin.

Ever since Bianchi published his account of the isolation of a special bacillus from the blood and meninges in two cases of delirium, an observation subsequently confirmed in nine other instances, the eyes of many neuropathologists have been fixed upon the hopeful field of bacteriology. Bianchi candidly admits that it remains to be seen whether such an organism is really pathogenic or an aggravating concomitant.

The researches of Ford Robertson and myself on general paralysis strongly suggest the possibility that this disease is an infection by two types of the diptheroid group. A temperature reaction is given by general paralytics, following the administration of a specific antiserum, and the more recent unpublished results in serodiagnosis, using *B. paralyticans* as an antigen, show that the blood serum and cerebrospinal fluid of cases of general paralysis give a typical positive reaction. This reaction is absent in the normal individual and in other insanities and is found with as great a degree of positiveness



in the blood serum of the prostitute as in the general paralytic. These findings suggest the possibility that this disease is a general infection, absolutely foreign to syphilis, and that the disease is transmitted by sexual intercourse.

The aid afforded us by the Wassermann reaction in the elucidation of the etiology of some of the various insanities, and the great degree of frequency with which a positive reaction is met, suggests to our minds that syphilis is an active factor in the production of insanity. Bruce maintains that in practically all the insanities attended with excitement there is a hyperleukocytosis similar to that found in the infective diseases, and that in the blood serum of maniacal patients agglutinins to certain organisms of the streptococcus group are present, though rarely such agglutinins are found in the serum of sane and healthy persons. Coupling these facts with an ascertained overgrowth of bacterial flora in the intestinal tract of the same class of patients, the bacterial overgrowth results in the formation of toxins, which are absorbed by the blood and lymph and attack the nerve structures, precipitating an attack of mania or other type of insanity, the mental state being determined by the sudden or gradual, great or small amount of toxin absorbed by the blood.

When psychology is divorced from psychiatry and the study of psychiatry is prosecuted along the lines of advance in general medicine, our knowledge of mental diseases cannot fail to be increased.

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### **Cataract From Concussion, with Report of Case.**

By EDWARD LAUDER, M. D., C. M., Cleveland.

Our general conception of traumatic cataract is of those cases in which a penetrating wound of the eye has occurred with direct injury to the lens. The fact that cataract can and does occur from trauma without a penetrating wound, is of but comparatively rare occurrence, is sufficient justification for a reference to this subject and for reporting this case.

Berlin demonstrated experimentally that by striking the cornea of a rabbit's eye with an elastic rod he not only produced abrasion of the corneal epithelium, with subsequent opacity of that membrane, but he also produced a clouding of the anterior cortical layers of the lens, this clouding be-

ginning opposite the point of injury of the cornea and usually spreading to a considerable distance. Deutschman has reported two cases of partial transient opacity of the lens in wounds of the sclera near the sclero-corneal junction. Becker reports a case of cataract from concussion without rupture of the capsule. The eye received a blow from a falling icicle, which did not rupture the sclera but produced a rent in the choroid, distinctly visible through the then clear lens. Three weeks later there was an opacity of the lens about the size of a moderately dilated pupil.

Opacity may be partial and become stationary, or it may progress and become complete. It is not necessary that the blow should fall on the eyeball directly. A blow on the orbit or side of the head may be followed by opacity of the lens. Weeks reports the case of a patient, 25 years old, thrown from a carriage, striking on the right side of the head. Some months later vision in the right eye became impaired. Examination revealed the presence of minute opaque spiculae at the periphery of the lens, extending from the equator toward either pole. The center of the lens remained free. Fifteen years later the opaque striae had not materially changed. Fuchs reports the clearing up of four traumatic cataracts.

The question that arises in cases of this nature is,—Does the capsule of the lens rupture or does it not? In many of these cases it is likely that rupture of the capsule has taken place probably in the region of the equator of the lens, and, on the other hand, it is stated as a fact by some investigators that lenticular opacity is caused by simple concussion without opening of the capsule. Postmortem opportunities have not arisen so that investigation could be made as to rupture of the posterior capsule.

The case which I wish to report, R. W., male, aged eight years, was referred to me August 2, 1910. The history I obtained was that, on the previous day, while playing with other small boys, one of whom had an air gun, he was struck in the right eye by a B.B. shot fired at a distance of about 12 feet. Inspection of the eye revealed slight ciliary congestion. The cornea was not perforated but showed slight haziness toward the inferior temporal quadrant; there was slight hyphemia and the pupil was moderately dilated. On September 13 the



cornea was clear, but in the inferior temporal quadrant of the lens there was a distinct round opacity about 2mm. in diameter and involving the anterior layers of the lens. Vision at this time was 2/200. On October 15 the lens was completely opaque.

1021 Prospect Ave.

### Review in the Progress of Pediatrics.

Conducted by HELEN HEMPSTEAD, M. D., Cleveland.

The Demonstration of Casein in the so-called Casein Curds of Infants' Stools—Uffemheimer and Takeno.

Recent Investigations on the Thymus and their Meaning in Pediatrics—Klose.

Thyroid Headaches of Childhood—Levi and de Rothschild.

Are Adenoids Congenital?—Erdely.

The Control of Epidemic Poliomyelitis—Flexner.

Clinical Observations and Assimilation Experiments on the Action of Various Salts in Infants—Meyer and Cohn.

#### THE DEMONSTRATION OF CASEIN IN THE SO-CALLED CASEIN CURDS OF INFANTS' STOOLS.

By A. Uffemheimer and Y. Takeno: *Zeits. für Kinderheilkunde*, 1911, Bd. 2, Heft 1.

The authors experimented with the newer methods of biology and anaphylaxis. They injected into animals, chiefly guinea pigs, solutions of the curds of infants' stools, the infants having been fed upon cow's milk. After this sensitizing dose a solution of cow's milk diluted 1 to 5, and from which the fat had been removed by centrifugalization, was injected. In 26 cases, by the help of the anaphylactic test, casein was demonstrable in the curds. In three cases of breast-fed children the method gave negative results. Other experiments used the cow's milk for sensitizing the animals and the curds in decinormal sodium hydrate solution for reinjection. These experiments also gave positive results. In the sensitization with curds, not only the cow's milk casein was used but several kinds of antigen, as human albumin, intestinal epithelium and bacterial albumin. The authors also utilized the precipitation test and found it positive in five out of 14 cases. The authors conclude that from their results they can no longer doubt that in the curds from ill infants nourished with cow's milk casein is not seldom found.

#### RECENT INVESTIGATIONS ON THE THYMUS AND THEIR MEANING IN PEDIATRICS.

By Heinrich Klose: *Archiv für. Kinderheilkunde*, 1911, Bd. 55, Heft 1 and 2.

The author reviews historically and clinically the diseases

of the thymus and presents experiments of his own. Former experiments, such as those of Frierleben, cannot be accepted as there is no certainty that the thymus was totally extirpated. The thymus has an extraordinary vitality which makes it possible to regenerate itself completely anatomically and functionally from the smallest pieces remaining after operation. Klose operated on dogs at about the tenth to twelfth day of life. He regards the thymus as an organ which prevents the formation of acids in the body, or neutralizes or counteracts a superfluity of acids. The thymus has to do with the assimilation of nourishment, the regulation of the action of the heart and arteries, and has influence in the organism's power to withstand bacterial invasion. The thymomectomized animals for 14 days show a latent period and then an adipose stage, followed by loss in weight, weakness and often spontaneous fractures, the cachectic stage. As to the bony changes, the same organism would show evidences of rachitis, osteomalacia and osteoporosis. Chemically the ratio of the salts in the bony system do not change, but only the total quantity of salts is decreased. The author believes that thymomectomy produces a slow acid intoxication as the thymus is an organ which prevents acid building in the body. In the growing bone the nucleinic acid poisoning produces a defective structure with abnormal softness, and tendency to bending, in completed bone it causes increased destruction, osteomalacia, osteoporosis with abnormal breakability. The theory of tetany in children will have to take into consideration this acid poisoning and the author believes that many obscure diseased conditions of childhood may be explained by this disarrangement of acid and alkali. The acid poisoning theory of the author further shows why animals from which the thymus has been taken cannot be cured by thymus substance, as by giving it we are giving the acids which are the direct cause of the poisoning. In cases of general acid poisoning through thymic aplasia, hyperplasia or disease, as lymphatismus, status lymphaticus without stenosis, thymic idiocy, or tetany, one must consider giving an increased diet of alkali or some stimulant leading to its increased formation. The author does not believe that the citrate, tartrate, sulphate and phosphate of sodium and potassium will succeed in cases of acid action. It is probable that phosphorus succeeds by destroying the proteid with the development of ammonia.



## THYROID HEADACHES OF CHILDHOOD.

By Leopold Levi and H. de Rothschild: *Revue d'Hygiene et de Medecine Infantiles*, 1911, Tome X, No. 2.

The authors state that ordinary migraine in the adult or child is usually of thyroid origin. In 10 cases of their own of migraine in children which they treated with thyroid they observed cures, or amelioration of the symptoms if the treatment had not been long continued. They are convinced that the migraine of childhood is of thyroid origin. They found the thyroid treatment to cure hereditary migraine. They advise small doses, usually 5 mg. at first, and found that larger doses would often make symptoms reappear which had disappeared under small doses. In their 10 cases they found immediate amelioration of symptoms upon thyroid treatment. It was continued and progressive and would show at once upon renewing treatment after it had been abandoned for a time. Thyroid powder is given and the treatment must be prolonged even to two years. The children treated showed signs of thyroid disturbance, nervousness, decreased appetite, constipation, retarded physical development, at times intellectual or dental retardation, with hairy system little or over developed. The migraine is often hereditary, manifesting itself in unilateral or bilateral headache, intense paroxysmal pain, accompanied by nausea, vomiting and at times vertigo. They have not noted delirium, convulsions or ophthalmic migraine.

## ARE ADENOIDS CONGENITAL?

By Eugen Erdely: *Jahrbuch für Kinderheilkunde*, 1911, Bd. 73, Heft 5.

After enquiring of the parents as to the history of the older children brought to the clinic, the author found that in many cases there had been evidences of adenoids from a very early age. The author believes that the adenoids are usually congenital and that the enlarged tonsils are a result of the chronic inflammation. The first duty is to distinguish the direct appearance of the growths from the symptoms of the accompanying disease. If in spite of the most rigid diet the adenoids do not disappear their removal is indicated. If the infant is hindered in nursing by the size of the growth, so that it suffers from ill nourishment, the second indication for removal is present. On account of the danger of infection it is advisable, excepting in extreme cases, not to operate before

the third month. Otherwise the author advises operation at the sixth month.

#### THE CONTROL OF EPIDEMIC POLIOMYELITIS.

By Simon Flexner: *Amer. Jour. of Diseases of Children*, Vol. 2, 1911, No. 2.

Flexner suggests that the United States has suffered disproportionately and more severely than Europe in its epidemics of poliomyelitis because often the disease here was unrecognized and because there were no authoritative sanitary regulations to enforce quarantine. In controlling an epidemic most attention should be paid to prevention. The human agency, both by those actively infected and those healthy persons who are about the ill, occurs frequently. Hence there must be quarantine of the sick and of those in attendance on the sick. The author views cases of long persistence of the active virus in the monkey as cases of chronic bacteria carriers. He thinks a period of isolation of three to four weeks sufficient in ordinary cases. The nasal and buccal secretions of those affected with poliomyelitis must be especially well cared for, as in them is probably the chief source of infection, although all the secretions must be treated in a sanitary manner. It is possible that domestic animals may serve as reservoirs for the virus. Flies may harbor the virus on their bodies or in their viscera. Recovery from the disease is effected by means of immunity principles in the blood. Sera obtained from animals subjected to injections of spinal cord and brain of monkeys containing the living virus, are relatively weak in immunity principles and will be of little aid in cases of developed poliomyelitis in human beings. The only drug recommended is hexamethylenamin.

#### CLINICAL OBSERVATIONS AND ASSIMILATION EXPERIMENTS ON THE ACTION OF VARIOUS SALTS IN INFANTS.

By L. F. Meyer and S. Cohn: *Zeitschr. für Kinderheilkunde*, 1911, Bd. 2, Heft 5.

The experimental work was done with artificially nourished infants under three months of age and the period of observation would last from four to five days. From their careful and numerous experiments the authors come to the following conclusions:

1. Sufficiently large doses of sodium chlorid and other sodium salts (bicarbonate, phosphate, bromid, but not the



iodid), cause in the infant a considerable increase in weight. Of the potassium salts, potassium bicarbonate and potassium phosphate cause a decided decrease in weight. Potassium chlorid does not cause so marked a decrease in weight. Of the calcium salts the chlorid appears to have an especially strong action in decreasing weight. The acetate has a less marked action in reducing weight and the lactate causes usually no decrease, in one case an increase in weight. In the sodium salts it is the sodium that plays the chief role.

2. In the literature various observations made from animal experiments on the action of sodium chlorid in producing diuresis and causing loss of weight, are only apparently in opposition to the authors' observations. This difference rests on the different action of sodium chlorid in man and animals. There must be taken into consideration also; 1, the amount of salt given; 2, the amount of salt in the nourishment taken before the experiment; and 3, the amount of fluid taken. By variations of these three factors, especially of the last, even in the infant sodium chlorid may cause diuresis and loss of weight. The fever caused by sodium chlorid is also found under these conditions. Former salt fever theories must be seen to be untenable.

3. The single ions of the salt may undergo different fates. They often go different ways, for example, in calcium chlorid the anion is eliminated through the kidneys, the kation through the intestines, and they are retained in different amounts or eliminated in different amounts. When calcium chlorid is given, 67.7% calcium and 17.8% chlorin is retained. Therefore the meaning of the retention of salts is not definite. One should speak, instead, of the retention of a single ion. Contrary to the often occurring views the authors state that after giving salts the assimilation of the remaining minerals is in part altered in a surprising manner. Potassium bicarbonate especially causes a diminution of sodium, but also of other minerals. Calcium chlorid causes a great elimination of sodium and potassium. Sodium chlorid leads to an increased elimination of potassium while it increases the amounts of the other minerals.

4. The action of salts on the weight show a parallelism between the decrease in weight action and the demineralizing action.

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## EDITORIAL.

### O Tempora! O Mores!!

Attendance upon the two recent meetings of the Academy of Medicine, particularly if preceded by the perusal of Barnesby's "Medical Chaos and Crime," is apt to lead to the conclusion, unless one takes an extra fast grip on the tail feathers of one's optimism, that the practice of medicine is something with which a gentleman cannot afford to meddle. The purpose of the Academy meetings was the discussion of symptoms rather than the determination of remedies. The latter is the function of the Committee on Medical Practice. It was made quite evident that the practice of medicine is associated with certain things which are altogether unlovely. The abuse of dispensaries by the



laity and the exploitation of physicians by means of certain forms of contract practice are established facts. The first of these two evils is, from the standpoint of the profession, the lesser. It can be more readily overcome; while it may defraud the physician it need not necessarily degrade him. Dispensary abuse will disappear when, on the one hand, the proper functions of dispensaries shall be more clearly realized by medical men and when, on the other hand, the distribution of charity shall be better controlled. In an ideal benign despotism the ruling power of any given political subdivision would know and would record all the essential facts relating to every individual. But the trend of modern politics is away from despotism. The masses, in ruling themselves, must do, rather blindly and gropingly, through experiment, through trial and error and through education what a god-like despot would do, clearly and wisely, through intuition and through superior intellect. During the experimental period, the period in which the civilized world finds itself today, many of the doctrines of which trial must be made will lead toward dependency rather than away from poverty and pauperism. The more the individual asks of his government the more detailed and complete must be the information concerning himself which he gives in return. Even the unideal modern municipality must recognize that one of its functions is the care of its unfortunate. Until the conditions under which the ordinary business of life is conducted are more nearly equalized help for the needy must continue to come very largely from the private purse. Abuse of charity, whether medical or otherwise, can be prevented only by some form of central registration. The municipality, although at present relieved of much of its just responsibility by the work of private and semi-private philanthropies, must ultimately come to bear its share in the necessary registration of each and every one of its needy dependents.

The pursuit of an impersonal and a, perhaps, fantastic governmental ideal as a cure for dispensary abuses is a much simpler matter than any similar sort of mental process applied to the question of the contract practice evil. Any sort of an ideal seems so far away that pursuit, even with the aid of hashish to help the imagination in its flight, appears useless. Certain forms of contract practice are economically and ethically proper. Other forms seem to be degrading to the profession. Worse than the

latter sort of work itself is the mental attitude of too large a proportion of the profession toward it. Many of us hate contract practice, not because it is evil, but because we have none of our own. To get a little we are willing to underbid the other fellow and, failing in that, we are willing to prate about trades-unionism as a matter of self-protection. *O tempora! .O mores!!*—evil, indeed, are the days that we have come upon and the nights are darker than Erebus. There is little that the organized profession can do to correct either the evils of contract practice or the mental attitude of a certain fraction of the profession toward them. Expulsion is the serevest penalty that a medical society can inflict. It is conceivable that a doctor who feels satisfied with such contract practice as he has might look very smilingly upon the penalty. If certain forms of contract practice are improper and if we must consider the application of the principles of trades-unionism by way of protection, then such regulatory and punitive measures as even the most powerful medical body may employ will have little real effect. For a cure more is necessary than the removal of the visible tumor or the alleviation of those symptoms detectable by the eye—if the metastases cannot be reached or if the evil spirit cannot be exorcised the prognosis must be bad. The roots of a number of medical evils lie too deep to be withdrawn by the application of a verbal blister.

The greatest evil of the medical profession is not contract practice or dispensary abuse or unethical advertising. Greater than any of these, back of all of them and the cause of all of them is the miasm of twentieth century commercialism. The deification of the dollar and the canonization of cash have reduced medical idealism to the vanishing point. The return to the idealistic is going to be a long journey, so long and tedious as to require a considerably stronger staff than medical society resolutions. A few points indicate that we may have started in the right direction. The disfavor in which the commercial medical school finds itself is one; increased requirements for entrance upon the study of medicine another. Education, of a kind which not only instills useful information but broadens the mind as well, before, during and after the medical course must be the most important factor in a return to the proper ideals. With



sufficient education we may achieve that degree of honesty which will make the doctor and the youth who wishes to become a doctor admit that the practice of medicine is not and shall not become, in theory or in fact, a money-making trade.

O. T. S.

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### Hospital Social Service.

The field of hospital social service is as yet without accepted limits. No hospital is entirely without social service for the care of the sick poor is but a branch of man's sociological service to his fellow in need; but of late there has come a more general recognition that the needs of this fellow are more than for bed and medicine and that the hospital has sadly neglected his other needs. The best of hospital beds is scarcely comfortable to a man wondering how his wife and children are to get food to eat until he can get to work again or to a woman who feels that her baby can not now get the proper care in the home she has left. The friendless, the hardened wanderers, the unfortunates, the outcasts, as soon as sickness weakens the body all weaken in their self-justification; the defiance and bravado are gone and now one may find out what was wrong and how to help. The field for hospital social service opens out all the way around; there is work whichever way one may turn. But how far to reach and how long to keep hold is the unsettled problem; for hospitals are not destined to usurp all the domain of charity.

For what shall hospitals now plan? To what should they aspire? It seems to the writer that the answer to the first of these questions depends upon the cooperation and the efficiency of the other charitable organizations of the community as well as upon the supply of funds and workers. If the needed work cannot be done by others, the hospital may justly go beyond its proper field in any direction and try to do it. The aspiration of the hospital should be exactly the same as that of every charity—to be a useful part of a community so well organized and so perfectly working that any unnecessary suffering of humanity and any unnecessary work to prevent such are alike excluded. In other words the social service of a hospital in an ideal, organized, cooperating community is limited as follows: The hospital should strive to discharge better men than it admits and use every available means to accomplish this end. It should

investigate the financial and sociological condition of the family and dependents of every patient promptly on admission and arrange for the correction of all needs found, by reporting to the proper charity if one exists for supplying such needs, if none such exists and *only* if none such exists should the hospital do the correcting itself. The field of none of the recognized charities should be invaded, but the report of the hospital should meet with response. It is but their side of the cooperation; the return comes when this charity finds sickness. The home may thus be kept free from want and the patient's mind from worry during the illness.

The return of the patient may bring new problems into this home, depending upon the diagnosis, the condition of the patient when discharged and upon the prognosis. These problems should be met in the same way. But the limit of the field of the hospital social service in homes should come with the end of the illness; for the reason that it should no longer be needed. The necessary work should never stop; but the absence of a sick member in a home should of itself assign the work to others and the presence of such bring back the hospital aid. A. R. W.

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### Importance of the Non-Pathogenic Bacteria in the Digestive Tract.

A recent article by Kendall, written for the Harvard D. H. P., and published in the *Journal of Medical Research*, has broken into a new field in the consideration of the relation of bacteria to the normal activities of the human digestive tract. Of late years, as a result of the development along the lines of sera and vaccines, the tendency has been to consider that bacteriology is mainly of value for the purposes of laboratory diagnosis or preparation of antibodies, as well of course as the fact that certain diseases are due to organisms. While the laboratory worker has been finding large opportunity of advance through new appreciations of symbiotic relations between bacteria and protozoa, such as have led to the isolation of the organism of leprosy by the use of amebae, this has attracted little attention in comparison with the other features. The rôle of the non-pathogenic bacteria except as they have a bearing on the redistribution of waste



products outside the body, as in plant metabolism and in sewage disposal, has been somewhat neglected, and it is the attempt of the author to show that symbiosis and the various relations of bacteria among themselves and to their food supply may have a large bearing on the health of the body when the place of activity is the human digestive tract.

Systematic study of the normal flora of the intestine by Kendall and others has shown that there are in the main two types of organisms, those which tend to ferment suitable materials with the production of acid as a constant result, and those which tend rather to proteolytic action with the production of putrefactive end products. It has long been known that the production of an undue amount of the putrefactive products leads to intoxications due to their absorption, and a variety of tests has been evolved in the attempt to find quantitatively the amount of this production. The line of prevention has been in the main an attempt to get intestinal disinfection, and has not been markedly successful. Incidentally experiments with animals indicate that a sterile condition of the digestive tract, at least in our latitude, is a questionable benefit even if obtainable.

Again it has been observed that the formation of toxins is checked by the presence of fermentable carbohydrates in the media, and proof is available that this is not due alone to the formation of acid from these sugars. The author of the present article shows that it is apparently due to quite another factor depending on the suitability of the food for the bacteria concerned. Where bacteria which are able to break down either proteins or carbohydrates have a choice they will attack the latter as long as these are present and only after their disappearance will touch the former. The bearing of this may at once be seen when we consider that the toxic products are formed not from the carbohydrates but from the proteins and that there will consequently be little or no toxin formed as long as the bacteria are able to find other food. Another factor which has a bearing is that most of the toxin producers are more or less inhibited in their actual growth by the presence of acid, so that where several varieties are growing together as is the case in the intestine, the toxin formers will be directly inhibited when there is acid formation.

Applying this theory, if the organisms of the digestive

tract be supplied with an adequate amount of suitable carbohydrate, the non-pathogenic forms such as *B. coli* will utilize this and will not form indol and skatol, so that the absorption of these products of putrefaction and other similar bodies will not interfere with the body activities and cause the symptoms of so-called auto-intoxication. Further, in the presence of pathogenic forms such as dysentery or typhoid, the body, being freed from the need of protection against these bodies will have greater energy to combat the pathogens, and these will also be more or less inhibited by the acid formation from the sugars. Metchnikoff and others have attempted to change the bacterial flora of the intestine by the introduction of new fermenting species, but Kendall has shown that the type of the flora can be changed merely by the increase of the carbohydrate supply.

We therefore have the suggestion that in diseases of the digestive tract where there is tendency to putrefaction or to the formation of toxins, the introduction of sugar, according to Kendall preferably the animal sugar *lactose*, will reduce the attack on the proteins and check the growth of the pathogens. Inasmuch as in diseases such as dysentery and typhoid one of the divisions of the treatment is starvation, in the absence of such food supply to the bacteria the body proteins are attacked, with a resultant loss in weight. Other observers have already shown that the feeding with lactose in typhoid results in keeping up the body weight, and according to Kendall the above is the interpretation of the results.

The theory is of extreme interest in its varied applicability. It may explain in part at least the reason for the greater value of human milk over cow's milk, on account of the greater putrescibility of the latter due to its lower lactose content. In actual clinical work the number of cases is too small for accurate conclusions, and the type of case was unusually severe, but at least there was a market retention of body weight, and in no case were there any untoward symptoms. It is to be hoped that further clinical experimentation will be done along these lines for any simple form of treatment which tends to keep up the body weight and the body resistance will greatly strengthen our hands in these intestinal diseases where the nutrition is of extraordinary importance.

R. G. P.



## Department of Therapeutics.

Conducted by J. B. McGEE, M. D.

**Hemoptysis:** In the *Archives of Internal Medicine* for July, Carl J. Wiggins considers the treatment of hemoptysis, and states that it is quite generally conceded that a favorable sequel following the administration of a drug is not a satisfactory test of its efficacy in checking hemoptysis, for it has been proved clinically and experimentally that hemorrhages from the pulmonary vessels often cease with the most surprising promptness. This spontaneous cessation is occasioned through the relatively low pressure in the pulmonary circuit, and the reticular nature of the lung parenchyma, which hastens the clot formation. A consideration of the pathological physiology of pulmonary hemorrhage indicates that an investigation of a drug's value in hemoptysis consists, first, in determining its ability, during various stages of hemorrhage, to reduce the pressure in, or the efflux of blood from, the pulmonary vessels. If it accomplishes this satisfactorily it still remains to be determined whether it tends to relieve the respiratory and vasomotor centers as well as the heart in their compensatory efforts to maintain the circulation. If it is found to antagonize these mechanisms, it becomes physiologically contraindicated. As regards the administration of the nitrites he concludes that it causes: (1) in normally breathing animals, a general increase in pressure throughout the pulmonary circuit, on account of the increased rate and amplitude of the heart; (2) in animals in which the breathing has become slightly accelerated, owing to hemorrhage, also an increase in pressure and hemorrhage from the pulmonary arteries and veins; (3) in the stage when they induce a reduction in the amplitude of respiration, a lowering of pulmonary vascular pressure and a reduction of hemorrhage. Early in the course of hemoptysis, when the breathing has not altered except for an occasional cough, one is dealing practically with a normal subject, and the object of paramount importance is promptly to reduce the bleeding by such drugs as lower the pressure within the pulmonary circuit. Investigation shows, (1) that this cannot be accomplished by vasomotor drugs such as nitroglycerin or nitrites, and (2) that cardiac depressants such as chloroform and pituitary extracts must be resorted to. If hemorrhage has continued until the heart is very rapid and the respiration accelerated, deep and forcible it is an indication (1) that the heart and blood vessels no longer react in a typical manner to certain drugs, and (2) that the anemia of the cerebral centers is being felt. During this stage it is important that the blood supply of the brain be not reduced by the drugs which check hemoptysis. Hence the drug that combines an ability to elevate systemic arterial pressure, and simultaneously to lower that in the pulmonary circuit, is the ideal physiological agent to employ during this stage. In the entire gamut of drugs investigated, pituitary extract is the only one that possesses this fortunate combination of actions.

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**Sulphonal:** Robertson in the *Therapeutic Gazette* for August (from *The American Journal of Medical Sciences*) says that sulphonal is a dangerous drug. He asserts that there is no other sedative in use, the employment of which in ordinary medical doses must be accompanied by so many precautions, and which is so beset by various dangers as sulphonal. Except in skilled and careful hands it must therefore be regarded as a dangerous drug, and it should not be prescribed unless the patient is to be under medical observation during its administration. Even in medical hands death has resulted from its use in a large number of cases, he having obtained notes of 25. It is,

moreover, absolutely ascertained that the true death roll is very much greater, as both the acute form of poisoning by sudden collapse and the more chronic form with hematorporphyrinuria may be mistaken for other conditions if sulphonal poisoning be not suspected. Uncertainty in its effects, or the existence of persons who are especially susceptible to it, are also serious objections to the usefulness of any drug. On the ground of this uncertainty the employment of sulphonal has been condemned by at least one authority on therapeutics. In contrast with these dangerous symptoms and even death with ordinary doses, it is known that very large single doses have often been taken by mistake or otherwise, and been recovered from. Patients have also been known to take sulphonal in full doses (90 grains per day) continuously for a period of many weeks without serious results, and others even for years without unpleasant symptoms. The evidence indicates, however, that by eliminating certain cases, by exercising precaution, and by watching its effects closely, sulphonal may be continuously administered with comparative safety. Its discontinuance or occasional use in single doses of moderate size, if idiosyncrasy has been excluded, does not appear to be accompanied by any danger. The comment of the *Gazette* is that considering the large amounts of the drug used, accidents have rarely occurred.

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**Arteriosclerosis:** Beverly Robinson in the *New York Medical Journal* for Aug. 19 discusses the treatment of arteriosclerosis, stating that with the frequent use of the sphygmomanometer, supertension has with many become a formal reason for active medication. It is not essential for interference of this kind that unpleasant or threatening symptoms should be present, or such at least seems to be the customary practice now. Fortunately there are some physicians whose practice differs from that of the majority in many particulars. They would be loath, for example, to give large doses of digitalis even to a failing heart, without as a rule counteracting its contractile effects upon the small arteries. Certainly they would not continue it, even in moderate doses, for any length of time, without watching its effects carefully and frequently. The iodids too are indicated, and often prescribed, but the larger his experience, and the more he watches cases of pronounced arteriosclerosis, especially in men and women past middle life, the less frequently he prescribes either digitalis or the iodids. If a cardiac tonic or stimulant is required strophanthus, caffein and nuxvomica are preferable by far and are liable in small or moderate doses to do positive injury. They require also judicious watching, and suppression at times, but not to the same degree as digitalis. To lessen supertension, where it is clearly indicated by reason of headache, fainting attacks, pallor and general nervous irritability, sweet spirits of nitre in small or moderate doses, added to water, is the least injurious and most useful drug he knows, not excepting nitroglycerin and the nitrites. On the other hand, we should never lose sight of the fact that supertension in arteries, like the physical changes upon which it depends and with which it is allied, is highly conservative and should not be combated by any unwise attempts to control or modify it. Certainly we do not wish to modify or change a hypertrophied heart which is doing what it should in view of the state of the arteries. Surely it is unwise to war actively against interstitial nephritis simply because the bulk of urine is increased, its specific gravity lowered, and it contains some hyaline and granular casts with a small quantity of albumin. Several things, however, should be followed by patients with arteriosclerosis: first, the mind should get a rest, change of scene, etc.; second, elimination from the dietary of excess of meat, sweets, alcohol, etc.; and third, the use of abundant water internally. Physical exertion should



be moderate, especially in hot weather, and the skin and bowels should be regularly attended to.

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**Diabetes:** Heinrich Stern in the *Medical Record* for July 22, states concerning diabetes that on account of the general application of the dietary methods to the management of the various glycosuric states, and on account of injudicious prescribing, and the polypharmacy of former years, medicinal treatment has for a number of years been relegated to the rear. In the degree, however, in which the influence of diet on amelioration of all the forms of melituria has been overestimated, the potency of a number of medicinal agents on the various substrata of the glycosuric symptom is nowadays unquestionably underrated. All medicinal substances thus far employed in the various forms of diabetes are at the best only symptomatic remedies. Rudisch advocates the use of atropin sulphate, and atropin methylbromid in diabetes, asserting that the action of atropin causes reduction of sugar excretion and increase of carbohydrate tolerance. He states that the large doses which he gives are well tolerated, provided the initial dose is small and the increase gradual, and that it is not necessary to administer the maximum dose in the majority of instances. The employment of atropin in diabetes is not of recent origin: Stein stated in 1903 that, generally speaking, the neurogenous type of glycosuria is the one in which medicinal treatment seems *a priori* indicated, and he named belladonna among the agents recommended. He has, however, used the methylbromid of atropin in the new method by the larger dosage of Rudisch in about a dozen cases of moderately severe and grave cases of diabetes. In all these cases there ensued more or less pronounced atropin poisoning; in two cases of moderately severe type the glycosuria disappeared after a few weeks dieting and the administration of atropin, and an increased tolerance for carbohydrates was not noted in these cases thereafter: in none of the remaining cases, which were nearly all of the grave type, did the atropin produce any other effects than those of a toxic nature.

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**Intestinal Antiseptics:** Julius Friedenwald and J. F. Leitz in the *International Clinics* (Series 21, Vol. II) considers the action of certain intestinal antiseptics on gastric digestion. Marked intestinal fermentation is not an uncommon accompaniment of certain gastric affections. Not only is this condition observed in patients suffering with hyperchlorhydria, but those with achylia gastrica are frequently similarly affected. Intestinal antiseptics are ordinarily employed to inhibit the growth of the intestinal flora to which this abnormal fermentation is due. It is therefore most important to determine whether by disturbing the gastric digestion certain antiseptics are not more apt to increase the fermentation than to lessen it. If the gastric digestion is still further impaired by the use of the so-called intestinal antiseptics, then their value is still further lessened. From their observations they conclude (1) that most intestinal antiseptics markedly interfere with gastric digestion; (2) that this disturbance varies largely with the nature of the gastric secretion and the motility of the stomach; (3) that salol, salicylate of bismuth, and lacto-bacilline are the least harmful to gastric digestion; that beta-naphtol, aspirin, ichthalbin, thymol, salicylic acid, and creosote are more apt to interfere with gastric digestion. When we bear in mind the fact that the results produced by means of the various intestinal antiseptics do not seem to be marked, and that at the same time most of these remedies are apt to interfere with the gastric digestion, it is but fair to conclude that they should always be administered with great caution.

**Cholelithiasis:** In the August number of *Merck's Archives* R. J. Smith considers the medical treatment of cholelithiasis. Three elements perhaps enter into the formation of gall-stones. Bacterial infection is the most important, and this produces a low grade catarrhal inflammation, with swelling of the mucosa and consequent slowing of the bile current. These two causes are most in evidence but it is also true that cases seem to arise from a constitutional taint, the gall-stone diathesis. Medical treatment is directed to removing the catarrhal condition preceding the onset of colic, and to preventing and relieving acute inflammatory states. Treatment will not dissolve gall-stones already formed, nor will it remove the stones. Since the mere presence of gall-stones while in the quiescent stage is not inimical to health, the aim of any treatment is towards preserving the quiescent period. The main indication is the treatment of the infection, acute cholangitis or cholecystitis, aiding in restoring the mucous membrane to an approximately healthy state. It must be borne in mind that surgical interference is frequently demanded and should not be postponed too long by useless medical treatment when an early operation may restore the patient to health. For the infection and to prevent the attacks of colic, the one great remedy is sodium succinate. How it acts is problematical. That it does the work is the main consideration. It does prevent the attacks but is not itself a remedy for the attacks. It must be given for a year at least, in five grain doses, four times daily with free drinking of water. It increases the secretion of bile, thins it, reducing catarrhal inflammation and preventing further deposition of cholesterin. If there is hyperacidity of the urine and fetor of stools, sodium sulphocarbolate and sodium bicarbonate are indicated; they should be continued until the acidity reaches normal and the fetor is removed. For the acute attacks of colic relief of pain is the first consideration. Glonoin should be given by the mouth, 1-100 grain every ten minutes till flushing of the face occurs and a hypodermic of hyoscyamin 1-80 grain and strychnin arsenate 1-50 grain repeated in one hour if pain is still severe. In intense colic a hypodermic of  $\frac{1}{4}$  gr. morphin with 1-100 gr. hyoscin should be given at once and repeated in one hour if required, at the same time easing the pain with a few whiffs of chloroform.

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**Antipyrin:** *Therapeutic Medicine* for August (*The Hospital*) states concerning eruptions due to antipyrin, that it is a drug which is often taken by patients for minor ailments without advice from a medical man, and it is well to bear in mind that it is capable of giving rise in some persons to various forms of skin eruptions. There are three principal forms of eruption produced by the ingestion of antipyrin. One is a scarlatiniform erythema, accompanied by burning and itching, often involving the mucous membrane of the lips, mouth and throat, frequently with some fever and followed by desquamation. In other cases there may be a morbilliform rash consisting of dusky red, irregular rounded blotches, which may be almost generalized, or may be situated mainly on the limbs. This eruption may appear in the same patient every time the drug is taken. It comes out quickly and disappears slowly. A third form of eruption has been called "fixed erythema" and it may consist of a single patch or at most a small number. The eruption appears from half an hour to a few hours after the drug has been taken. The patches are rounded or oval, red, infiltrated, raised and sometimes even bullous. The lesion fades slowly in the course of several days or a week or more, leaving behind a pigmented macule which may remain for many months. After several attacks the pigmentation becomes altogether indelible. In some few instances gangrene of the patch has occurred. In the presence of an eruption of rounded, infiltrated patches,



of sudden origin and with tendency to recur in the same spots, one should think therefore of antipyrin.

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**Anaphylaxis:** In the *Journal A. M. A.* for Sept. 23, Howard T. Karsner and John B. Nutt consider the relation of the intoxicating dose of horse serum to the protective dose of atropin in the guinea pig. Within the past two years Auer and Lewis have shown that atropin sulphate has a distinct protective action against the asphyxia of immediate or acute anaphylaxis in the guinea pig, and their observations have been repeatedly confirmed. They conclude as a result of their experiments that the presence of distinct symptoms of anaphylaxis in all those animals which were saved, is sufficient evidence of the fact that they were highly sensitive. It is clear then that there is a quantitative relation between the protective dose of atropin and the intoxicating dose of horse serum. They state further that the minimum protective dose of atropin was not determined, but the conclusion that there is a general relationship between the doses of atropin and serum is obvious.

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## Academy of Medicine of Cleveland.

### CLINICAL AND PATHOLOGICAL SECTION.

The seventy-ninth regular meeting was held at the Cleveland Medical Library. Friday, October 6, 1911, R. K. Updegraff in the chair.

W. B. Laffer showed a case of spina bifida occulta. At this time the patient, 13 years old, had considerable bony defect of the feet, and some sensory disturbance especially over the remnants of toes and feet. Over the lower lumbar and sacral region was a hairy growth present since birth. Discussion by W. H. Merriam and R. K. Updegraff.

M. J. Lichty presented a case of fibroid phthisis. The patient, aged 30, had had tuberculosis for nine or ten years, the right side being mainly affected. Four years ago he came home from the West expecting to die, the sputum then being full of tubercle bacilli. He was put in a window tent, and given good food. For two years he had a discharging sinus leading from one or two ribs; from this pus no tubercle bacilli could be obtained. The patient now looked fairly healthy and no tubercle bacilli could be found. The whole right chest showed a very flat note on percussion. Respiratory sounds could now be heard only at the apex of the right lung, and these very faintly.

E. O. Houck exhibited hospital charts of several cases of septic abortion cared for by the expectant plan of treatment instead of by curettement. He showed also a large, solid, benign, ovarian tumor, weighing about two pounds, removed from a patient who had shown considerable cachexia. No free fluid had been present, nor had the mass been palpable on vaginal examination.

C. A. Hamann stated that he had operated upon five ovarian fibroids. In all these cases free fluid had been present in the abdominal cavity which led to the consideration of malignancy in the diagnosis.

M J Lichty showed a stained blood slide showing a very high percentage of eosinophiles, from a case of leukemia, which he later reported.

C. W. Eddy, in connection with his paper on Meat Inspection, showed a number of pathological specimens, among which were:

A quarter of beef which showed numerous large areas of tuberculosis; the heart and lungs (the pluck) showing some involvement also; the liver with multiple abscesses; the udder from the same animal showing

well marked tuberculous involvement. All these specimens were from an animal four years old whose physical appearance did not indicate any serious disease, nor was anything found in the antemortem examination to indicate that it was not a perfectly healthy animal. This one case illustrated the value to a community of meat inspection, and would strongly suggest the value of even more stringent milk inspection. He also showed: A case of stenosis of the trachea of unknown origin in an otherwise healthy bovine. Sarcoma of lung (canine). Half a hog which had the petechiae of ears, skin, kidneys, etc., of hog cholera, yet the animal had presented no symptoms when alive. Tuberculosis of bone in a hog. Tuberculosis of kidney in a hog. Liver flukes. Tuberculosis of the tongue.

E. O. Adams exhibited a skiagraph of a fracture treated by the closed method.

R. G. Perkins, in reply to questions as to the water purification by the chlorin method, emphasized: (1) That the chlorin method of water purification was not an experimental procedure, but had been in use for some time in Toronto, Columbus, Cincinnati and other places. (2) That the factors in the local problem were: (a) a badly polluted water supply; (b) the impossibility of at present protecting the water shed; (c) the inability of the city as yet, on account of financial conditions, to put in a filtration plant. (3) That the chlorin as used was not harmful. Experimental data had shown that seven parts of chlorin to 10,000,000 parts of water was necessary to kill the bacteria. This amount of chlorin was obtained from bleaching powder which was mixed with the water at the pumping station. The dosage used during the first two weeks, beginning September 11, 1911, was insufficient as shown by the bacteriological examinations of the water on September 18, 19 and 20. Now the amount has been raised to the ratio recommended above and the water at present was free from bacteria. Chlorin would not clarify the water. He wished it clearly understood that he regarded the chlorin method merely an emergency measure.

C. L. Graber and R. E. Skeel took part in the discussion.

The program was as follows:

1. Meat Inspection, C. W. Eddy. (To appear in full in the Journal.)
2. Report of a Case of Acute Leukemia, M. J. Lichty. (Appearing in full on page 806.)

W. H. Merriam thought the eosinophile percentage (85%) to be the highest reported in the literature. He had seen two cases with 78 and 57%, respectively. Most of the cases of acute leukemia he had seen had been of the lymphocytic type.

W. H. Weir said that the spleen had markedly increased in size after the patient had left Lakeside, as it had been but moderately enlarged while she was there.

3. Some Observations on the Treatment of Fractures, with Special Reference to the Open Method, A. F. House. (Appearing in full on page 802.)

M. J. Lichty spoke of the work of Lane of London in the open treatment of fractures: he never touched the bones or tissues with his hands, performing all the manipulations with instruments. His technic was remarkable but the later results as seen in the wards afterward were far from ideal.

#### ACADEMY MEETING.

A special meeting of the Academy was held at the Cleveland Medical Library Friday, October 13, 1911, the President, W. B. Laffer in the chair.



W. B. Laffer presented a case of tabes. The left pupil was dilated and responded slowly to light and accommodation but contracted markedly when the patient looked to the extreme left. The pupil seemed to be but little affected by cocain, adrenalin, eserine or homatropin, although homatropin produced more effect than the others.

The program consisted of a symposium on the Control and Management of Medical Charities.

1. The Value of the Charities' Clearing House in the Control of Dispensary and Hospital Abuse, Eugene C. Foster, Supt. Associated Charities. (Appearing in full on p. 818.)

2. Experience in the Actual Working of Large Dispensaries and Hospitals with Suggestions for their Adequate Control, F. C. Herrick, Charity Hospital; A. R. Warner, Lakeside Hospital; H. G. Gerstenberger, Babies' Dispensary; J. C. Fox, City Hospital. (Appearing in full on pp. 824, 833, 837, 844.)

W. G. Stern said that he did not believe the general practitioner was to blame for dispensary abuse. There should not be this great proportion of Jews receiving free medical treatment as the Hebrew Relief Association of this city employed investigators to determine the worthiness of Jews seeking relief, and had physicians to look after their sick. This association was part of the Hebrew Associated Charities and if requested they would always furnish any information they had about Jews. The hospitals were not always sincere in their efforts to eliminate unworthy cases and he cited one case in which a hospital had been informed as to the ability to pay of a patient receiving free treatment: notwithstanding this the patient continued to receive free treatment.

N. P. McGay said that he knew that some of the Jewish patients who had been refused aid at Charity Hospital Dispensary had later been similarly dealt with by the Hebrew Relief Association as they were not considered deserving cases.

H. Shube said that visiting nurses would often try to persuade private patients of physicians to seek hospital treatment and he cited two instances of patients who were paying their own physician for treatment and who did not wish hospital aid, being urged by a visiting nurse to go to a hospital dispensary.

W. C. Tuckerman said that the small sum charged by dispensaries for dressings or medicine was often regarded by the patients as a fee for the whole service rendered. He had several times been asked by patients to reduce his fee to the level of that charged by these dispensaries.

R. H. Birge wished to make it clear that dispensary physicians were not paid and that they, being practicing physicians, were injuring their own private practice as well as that of others not doing dispensary work. They were well aware of the evils existing but found it very hard to correct them, and in some cases were unable to attempt to do so as the trustees were responsible for the treatment of certain cases in the dispensary.

U. M. Bachman said that since in some dispensaries the name of the patient's physician was entered upon the investigator's card, it would be a good idea to telephone to that physician for information as to the patient.

W. H. Merriam agreed that the investigation as to the worthiness of a patient should be made by someone other than the dispensary physician treating the case. Personally, he had always tried to determine whether or not his dispensary patients were deserving of free treatment. About one-half of the patients who sought dispensary aid were not entitled to it, and of these 20 to 25% said they came because they would

secure a thorough examination which their own physician failed to make: he understood, of course, that with the low fees paid by patients of this class, a busy practitioner could not always devote the time to a thorough physical examination of every case.

A. D. Campbell asked whether Lakeside Hospital Dispensary was regularly doing contract work. One of his private patients who had been injured was instructed to go to this dispensary as his employers had a contract with the hospital to do all their accident work.

E. O. Houck said that the abuses had been very freely discussed and that Mr. Foster had indicated the remedy. Influence should therefore be brought to bear upon all the hospitals to see that their charity cases were reported to the Clearing House. Cooperation was essential and this end would not be attained if only one or two hospitals did this.

R. J. Lawlor said that these problems to be settled were serious ones. The need for such investigators of the charity cases in the dispensary was very evident.

W. B. Chamberlin said that the usefulness of the Associated Charities had been well demonstrated but he understood that they were extremely short of funds. From a purely selfish standpoint it would be to the interest of every physician to contribute financially to the Associated Charities.

R. K. Updegraff agreed that many patients went to the dispensary because they felt they were receiving more thorough examination and better treatment than they were from their private physicians. The obvious course, therefore, was for the private physician to do better work.

C. E. Ward said that he could see no reason for the existence of dispensaries. The city employed ward physicians who could attend to all charity cases in their districts. In his part of the city nearly all of the charity work was done by the practicing physicians and the district physician there had very little to do. He thought that the dispensary abuse was not so important as the work done in the hospital operating rooms where patients, well able to pay, were constantly receiving operative treatment for nothing.

F. C. Herrick said that a considerable part of dispensary material consisted of patients who had been sent there by the district physicians in order to get rid of them.

S. L. Bernstein found fault with one hospital for ignoring the family physician when an accident case requiring surgical care was brought to the hospital. Even if a case entered a private room the hospital visiting man was usually called in and no attention paid to the patient's private physician if, upon enquiring whether he had a private "surgeon," the patient said no, although he might have his own "physician."

G. S. Smith said that he considered dispensaries were a decided help to the general practitioner. In regard to referring back patients to the attending physician the question often arose whether or not he was competent to look after the existing trouble. This was particularly true in regard to the specialties.

C. L. Graber questioned the necessity of referring cases to the dispensary for special investigation, such as blood examination, etc. Personally he had found that the laboratory men who did this sort of work for him in his private cases willingly did it gratis for his charity patients.

F. E. Bunts asked whether it was not the province of the Academy to investigate this question. Since the profession as a whole suffered by it it was evidently to their interest to have it remedied.



E. C. Foster, in concluding the discussion, said that Charity Hospital did not register with the Clearing House, and until they did the Associated Charities could not undertake to make their home investigations for them. He regretted exceedingly that the Hebrew Relief Association, also, were not in this registration. If all medical charities reported to the Clearing House, much more information would be available as to the families needing free medical care. He regretted that the Clearing House is not having the same cooperation of the medical charities as with other charities in this city.

F. C. Herrick said that at Charity Hospital, if they knew that the Hebrew Relief Association had helped a given case it received attention without question, but if the worthiness of the case was in doubt it was referred to the Hebrew Relief Association for a card saying that the patient was deserving. Very few of these latter cases ever returned with a card from this association.

J. C. Fox said that the Associated Charities should be looked to for correct reports upon charity patients. As a rule nurses were unable to make this investigation satisfactorily owing to their lack of training in this sort of work and he thought that more attention should be paid to sociological instruction in the hospital training schools.

#### COUNCIL MEETING.

A special meeting of the Council of the Academy of Medicine was held Tuesday, July 25, 1911.

There was presented to the council a communication from the Secretary of the Municipal Association enclosing the report of the Association's Committee on Selection of Candidates to the Constitutional Convention. It was voted that R. E. Skeel be appointed delegate from the Academy to the Joint Conference on the Constitutional Convention called by the Municipal Association for July 27, and that he be instructed to act favorably upon the propositions contained in the report of the Municipal Association. C. B. Parker was named alternate to R. E. Skeel.

A communication was received from the Secretary of the Erie County Medical Society inviting the Academy to participate with the Erie County Medical Society and the Toledo Academy of Medicine in a joint meeting at Cedar Point some time in August. The Secretary was instructed to write the Secretary of the Erie County Medical Society declining the invitation upon the ground that the Academy already had under consideration a summer meeting.

It was voted that arrangements be completed by the Program Committee for the contemplated summer outing meeting.

The following resolution was presented by N. Rosewater: Resolved, that in view of the fact that statements presented to the Council of 1906 were misleading, the resolution of the Council condemning single sessions in favor of double sessions for our high schools be rescinded, pending an investigation by a committee of five, to be appointed by the Chair and to include the President, as to the merits of each. It was voted that there be appointed by the Chair a committee of five to investigate, from the standpoint of hygiene, the question of the advisability of recommending as to single or double sessions in the high schools, and that this committee confer with the former committee. The following committee was appointed: R. G. Perkins, Chairman; L. W. Ladd, George Bauman, Nathan Rosewater and L. K. Baker.

### Book Reviews.

**Practical Pathology: A Manual of Autopsy and Laboratory Technique for Students and Physicians.** By Aldred Scott Warthin, Ph. D., M. D., Professor of Pathology and Director of the Pathologic Laboratories in the University of Michigan. Second edition, rewritten and enlarged, 310 pages and 55 figures. Cloth, octavo. George Wahr, Ann Arbor, 1911.

The chief virtue of Warthin's little manual lies in the wisdom which the author has employed in the selection of such necessary technical procedures as are given in the book and in the briefness with which the methods are set down. In making actual use of such a book in the laboratory one wishes the essential and needful facts, not a long-winded discussion as to whys and wherefores. The routine recommended for the conduct of an autopsy is that which experience has shown to be the best. The author, while favoring a certain definite sequence of steps in the performance of a postmortem examination, impresses upon the reader by frequent reiteration the point that, when necessary, the accepted routine must be varied. The postmortem has two important aims. For the first and more immediate of these, the determination of the pathological changes present, a technic is necessary which will destroy nothing before it is examined and which will lay bare the relationships of lesions to each other. The second object, the preservation of the findings in such form that they may be useful to future workers, requires a proper form of record and the proper preservation and preparation of the tissues. Warthin's volume gives sufficient emphasis to both aims. The book should be especially helpful to the physician who, not experienced by a term of service as hospital pathologist, is called upon to make a postmortem examination for medicolegal or other purposes. Typographical errors are still numerous enough in the second edition to require the insertion of a small sheet of errata. The obscurity of the publisher will probably prevent the book's having as wide a distribution as it deserves.

O. T. S.

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**Golden Rules of Diagnosis and Treatment of Diseases.** By Henry A. Cables, B. S., M. D., Professor of Medicine and Clinical Medicine of the College of Physicians and Surgeons, St. Louis, etc. C. V. Mosby Co., St. Louis, Mo. 1911. Price \$2.50.

The author attempts to give the most salient points in the diagnosis and treatment of diseases in something less than 300 pages. He considers diseases of the stomach, intestines, liver, gall bladder, pancreas, peritoneum, kidney, bladder, blood, ductless glands, vascular system, lungs, pleura, infections and constitutional diseases in separate chapters. In order to cover such a field he has necessarily become didactic and dogmatic and in his attempt at brevity, he has made statements which, without explanation, are open to contradiction. Personally, we prefer at least a brief statement of pathology in works on diagnosis and treatment. While the work in its present form smacks somewhat of "Every man his own doctor," yet, on the whole, it will be found a book of ready reference for the medical student and young practitioner for the interpretation of the symptoms of some cases.

J. H. Q.

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**History of Dentistry in Cleveland, Ohio.** By Henry Lovejoy Ambler, M. S., D. D. S., M. D., D. Hist. Publishing House of the Evangelical Association, C. Hauser, Agent, Cleveland, Ohio.

This little work by Dr. Ambler shows the extensive research work that he has done in looking up everything possible relating to dentistry in the history of this city, especially in searching old files of the early



newspapers. Biographical notes and sketches of a large number of Cleveland dentists are given, both of those now in practice and of many of the older dentists of the past. There are a large number of illustrations of appliances, etc., that have been devised by dentists in this city. The work should not only be of great interest to the dental profession of today but will serve as a record of many details which otherwise might have been hopelessly lost.

W. H. W.

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American Practice of Surgery. A Complete System of the Science and Art of Surgery, by Representative Surgeons of the United States and Canada. Editors: Joseph D. Bryant, M. D., LL. D., and Albert H. Buck, M. D., of New York City. Complete in eight volumes. Profusely illustrated. Volume VIII. William Wood & Co., New York City.

This volume brings to completion one of the most complete and satisfactory systems of surgery so far written. Part XVI, Regional Surgery, is continued in this volume. The first article on Intrathoracic Surgery is by Joseph Ransohoff and J. Louis Ransohoff of Cincinnati. The heart and esophagus are excluded but conditions affecting other thoracic organs have been fully dealt with. Surgery of the Spleen has been written by Alexander E. Garrow of Montreal. Surgical Diseases and Wounds of the Kidney and Ureters is by James Bell, Montreal, and is a masterly contribution. Geo. David Stewart of New York has written on the Surgery of the Pancreas and also on Surgery of the Liver, Gall Bladder and Biliary Passages. Both of these chapters have been very satisfactorily prepared. Surgical Diseases, Wounds and Malformations of the Urinary Bladder and Prostate is contributed by Alexander H. Ferguson of Chicago and clearly portrays the vastly improved results that in recent years have attended surgery of prostatic affections. Benj. R. Schenck of Detroit contributes a paper on Surgery of the Ovaries and Fallopian Tubes and within a space of 50 pages gives as satisfactory a résumé of this subject as can be allowed in a system of this description. Surgery of the Uterus and its Ligaments by John B. Murphy and Frank W. Lynch of Chicago forms a lengthy article of 250 pages. The subject has been, therefore, thoroughly treated. Lewis S. McMurtry of Louisville has written short papers on Extrauterine Pregnancy and upon Cesarean Sections and its Substitutes.

Part XVII deals with The Law in its Relation to the Practice of Surgery. The authors, Steven Smith and Sidney Smith of New York, have contributed a very full and satisfactory summary of this important relationship.

Part XVIII deals with Administrative Surgical Work. Hospitals and Hospital Management is by Christian R. Holmes of Cincinnati. Various important subjects, such as heat, ventilation, light, arrangement of buildings, etc., are considered and the subject is illustrated by plans and buildings of various hospitals in this country and abroad.

Military Surgery, by Major Chas. Lynch of the U. S. Army, gives the organization of the medical department of the U. S. Army and the plan of administration to be carried out both in peace and war. Naval Surgery is by Surgeon-General Chas. F. Stokes of the U. S. Navy, while James A. Hutchinson of Montreal writes on Administrative Railroad Surgery.

The volume concludes with an appendix dealing with The Relation of Blood Pressure to Surgery, by J. A. Sweet of Philadelphia, and an index for the whole eight volumes of the system. The appearance of the final volume of this series marks the completion of a work of the highest order of excellency and the editors deserve the heartiest congratulations upon the outcome.

W. H. W.

The Practical Medicine Series. Volume II, General Surgery. Edited by John B. Murphy, A. M., M. D., LL. D. Series 1911. The Year Book Publishers, Chicago.

This volume is a résumé of the surgical progress for the year with comments thereon by the editor. New methods of treatment and the technic of new operations are described and a reference always given from the original article from which the résumé is taken. The volume is very well illustrated and maintains in every way the excellence of the previous numbers of this series.

R. H. B.

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### Acknowledgments.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D., Assisted by Leighton F. Appleman, M. D. Volume XIII, No. 3. September 1, 1911. Lea & Febiger, Philadelphia and New York. Six Dollars per annum.

The Mechanism of Life. By Dr. Stephane Leduc, Professeur A L'Ecole de Médecine de Nantes. Translated by W. Deane Butcher. Price, cloth \$2.00. Rebman Co., New York.

Cesare Lombroso. A Modern Man of Science. By Hans Kurella, M. D. Translated from the German by M. Eden Paul, M. D. Price, cloth \$1.50. Rebman Co., New York.

A Pocket Medical Dictionary. Giving the Pronunciation and Definition of the Principal Words Used in Medicine and the Collateral Sciences. By George M. Gould, A. M., M. D. Sixth edition, revised and enlarged, 34,000 words. Price \$1.00. P. Blakiston's Son & Co., Philadelphia.

Currents of High Potential of High and Other Frequencies. By William Benham Snow, M. D. Second edition. Scientific Authors' Publishing Co., New York. 1911.

Diseases of the Stomach. A Textbook for Practitioners and Students. By Max Einhorn, M. D., Professor of Clinical Medicine at the New York Post-Graduate Medical School and Hospital. Fifth revised edition. Price, \$3.50 net. Wm. Wood & Co., New York.

Case Histories in Neurology. A Selection of Histories Setting Forth the Diagnosis, Treatment and Postmortem Findings in Nervous Disease. By E. W. Taylor, A. M., M. D., Instructor in Neurology, Harvard Medical School, etc. W. M. Leonard, Publisher, Boston.

A Textbook of Pathology. With a Final Section on Postmortem Examinations and the Methods of Preserving and Examining Diseased Tissues. By Francis Delafield, M. D., LL. D., and T. Mitchell Prudden, M. D., LL. D. Ninth edition, with 13 full page plates and 687 illustrations in the text, in black and colors. Price, \$5.50 net. Wm. Wood & Co., New York.

Textbook of Embryology. By Frederick Randolph Bailey, A. M., M. D., and Adam Marion Miller, A. M. Second edition, with 515 illustrations. Price, \$4.50 net. Wm. Wood & Co., New York.

Orthopedic Surgery. By Edward W. Lovett, M. D., Associate Surgeon to the Boston Children's Hospital, etc. Price, \$3.50 net. Wm. Wood & Co., New York.

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### Ohio State Board of Medical Registration and Examination.

The Board has adopted the following resolutions indicating the requirements to be met by a medical college before it can be considered an "acceptable medical college."



Resolved, That on and after this date a medical college to be recognized as in good standing by the Medical Board of the State of Ohio shall comply with the following requirements:

1. It shall strictly comply with all the claims made in its announcements and enforce all its standards and requirements.
2. It shall require for admission at least a four year High School education, this to consist of 15 units as evaluated by the Ohio State entrance examiner, which shall be fully completed before matriculation in the medical school.
3. It shall require that regular students who are candidates for the M. D. degree be in actual attendance in the school within two weeks of the beginning of each annual session and thereafter.
4. That actual attendance of classes be insisted upon, and that no credit be given under any circumstances for less than 80% of attendance on each course. The evidence of such attendance shall be determined by actual roll call, or monitor's record.
5. That advanced standing be granted only to students of other acceptable colleges after official credits covering entrance credentials and medical work have been received directly from the officers of said college.
6. There shall be careful and intelligent supervision of the entire school by a dean or other executive officer who holds and has sufficient authority to carry out fair ideals of medical education as interpreted by modern demands.
7. There shall be a good system of records showing conveniently the credentials, attendance and grades of the students, and the original credentials presented by the student for entrance or advanced standing shall be kept on file.
8. The college shall give a fully graded course covering four years of at least 32 weeks each, exclusive of vacations and holidays, and at least 30 hours per week of actual work, for each student shall be maintained and this course shall be clearly set forth in a carefully prepared and printed schedule of lectures and classes.
9. There shall be two years of work, consisting largely of laboratory work in thoroughly equipped laboratories in anatomy; histology; embryology; physiology; chemistry, inorganic, organic and physiological; bacteriology; pathology; pharmacology and clinical diagnosis.
10. There shall also be two years of clinical work, largely in hospitals and dispensaries, with thorough courses in internal medicine (including physical diagnosis, pediatrics, nervous and mental diseases), surgery (including surgical gynecology, surgical anatomy, orthopedics, operative surgery on live animals or on the cadaver), obstetrics, laryngology, rhinology, ophthalmology, otology, hygiene and medical jurisprudence.
11. The college must have expert, thoroughly trained instructors in the laboratory branches and also a reasonable number of trained assistants in each department.
12. The college should own or control, or have access to for teaching purposes, a hospital in order that its students may come into close and extended contact with patients under the supervision of the attending staff. The hospital should have a sufficiently large number of patients to permit the students to see and study the common varieties of surgical and medical cases, as well as a fair number in each of the so-called specialties.
13. The college must have facilities for and require at least five maternity cases for each senior student, who should have actual charge of these cases under the supervision of the attending physician.

14. The college must have a dispensary department under the control of the college and the material must be well used for the benefit of the senior classes.

15. The college shall have a working medical library to include the more modern textbooks, reference books and medical journals. The library room must be easily accessible to students, during all or the greater part of the day.

16. The college must have a working medical museum with its various anatomic, embryologic, pathologic and other specimens carefully prepared, labeled and indexed so that any specimen may be easily found and employed for teaching purposes.

17. A supply of such useful auxiliary apparatus as the stereopticon, a reflectoscope, carefully prepared charts, embryologic or other models, manikins, a Roentgen ray outfit, and other apparatus generally used in medical teaching.

18. The college should show evidence of modern methods in all departments and evidence that the equipment and facilities are being intelligently used in the training of medical students.

19. The college shall publish a clear statement of its requirements for admission, tuition and other charges, time of attendance on the classes, sessions and graduation, together with complete lists of its matriculants classified by classes and latest graduation class in regular catalog announcements.

The Following Medical Colleges Outside of Ohio Are Considered Acceptable to the Ohio State Board.

#### REGULAR SCHOOLS.

California: Leland Stanford Junior University Medical Department (Cooper Medical College), San Francisco. University of California, Medical Department, San Francisco—Los Angeles.

Colorado: School of Medicine, University of Colorado, Denver.

Connecticut: Yale Medical School, New Haven.

District of Columbia: George Washington University, Department of Medicine, Washington. Howard University, School of Medicine (colored), Washington.

Illinois: College of Physicians and Surgeons, Chicago. Northwestern University Medical School, Chicago. University of Chicago, Rush Medical College.

Indiana: Indiana University School of Medicine, Indianapolis.

Iowa: Drake University, College of Medicine, Des Moines. State University of Iowa, College of Medicine, Iowa City.

Kansas: University of Kansas, School of Medicine, Kansas City.

Louisiana: Tulane University of Louisiana, Medical Dept., New Orleans.

Maine: Medical School of Maine, Portland.

Maryland: College of Physicians and Surgeons, Baltimore. Johns Hopkins University, Medical Dept., Baltimore. University of Maryland, School of Medicine, Baltimore.

Massachusetts: Medical School of Harvard University, Boston. Tufts College Medical School, Boston.

Michigan: University of Michigan, Dept. of Medicine and Surgery, Ann Arbor.



Minnesota: University of Minnesota, College of Medicine and Surgery, Minneapolis.

Missouri: St. Louis University School of Medicine. Washington University, Medical School, St. Louis.

Nebraska: University of Nebraska, College of Medicine, Lincoln.

New Hampshire: Dartmouth Medical School, Hanover.

New York: Albany Medical College. Columbia University, College of Physicians and Surgeons, New York City. Cornell University Medical College, New York City. Syracuse University, College of Medicine. University and Bellevue Hospital Medical College, New York City.

Oregon: University of Oregon, Medical Dept., Portland.

Pennsylvania: Jefferson Medical College, Philadelphia. University of Pennsylvania, Dept. of Medicine, Philadelphia. Womans Medical College of Pennsylvania, Philadelphia. University of Pittsburg, Medical Department.

Tennessee: Vanderbilt University, Medical Dept., Nashville. Meharry Medical College (colored), Nashville.

Texas: University of Texas, Department of Medicine, Galveston.

Vermont: University of Vermont, College of Medicine, Burlington.

Virginia: Medical College of Virginia, Richmond. University College of Medicine, Richmond. University of Virginia Department of Medicine, Charlottesville.

#### CANADIAN COLLEGES.

Manitoba Medical College, Winnipeg, Manitoba.

McGill University, Medical Faculty, Montreal, Quebec.

Queen's University, Medical Faculty, Kingston, Ontario.

University of Toronto, Medical Faculty, Toronto, Ontario.

#### ECLECTIC MEDICAL COLLEGES (WORTHY OF RECOGNITION).

Eclectic Medical College of the City of New York.

The Lincoln Medical College, Lincoln, Nebraska.

California Eclectic Medical College, Los Angeles.

The list of Homeopathic colleges is to be subsequently published.

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### Correspondence.

#### DR. KELLEY'S METALLIC FULCRUM.

Cleveland, Sept. 30, 1911.

*Dr. Wm. H. Weir, Editor of the Cleveland Medical Journal:*

Since you spoke to me the other day requesting a contribution to the Journal, it occurred to me that I might present a few devices, instruments, or "wrinkles" of technic, etc., which have proved useful to me in my work and which might be of interest to your readers. For instance: All surgeons who do bone and deformity work are familiar with the wedge-shaped fulcrum across which, by the power of the surgeon's hands and arms, bones, for example bow-leg or sabre-leg are broken (when it is not desired to use the osteoclast), or clubfoot corrected (after necessary tenotomies, fasciotomies, etc.). This wedge

an abrasion or any external wound in the use of the fulcrum, but such may occur, and all precautions must be taken to render such an accident harmless as regards infections. Now I have had fulcra made of metal. Metal is an improvement over wood in that it can be rendered aseptic or fulcrum has usually been made of wood, a convenient size and shape being that of an isosceles triangle measuring about 8 or 9 by 4 by 5 inches, with rounded edges. Of course it is not intended to produce by boiling, and yet retain its smoothness. Washing with antiseptic



solutions may possibly secure surgical cleanliness, but not so certainly as boiling. Boiling causes wood to crack and roughen. Brass nickel-plated makes a good fulcrum, but although made hollow, is cumbersome for transportation, weighing seven pounds. My aluminum fulcrum has a beautiful surface, is easily kept bright, and weighs only two pounds and seven ounces. It could be made even lighter. The three edges are rounded to three different degrees of sharpness. No soda should be used in the solution for boiling aluminum. I enclose a photograph showing the instrument. Hoping this offering may be of service, I remain,

Very truly yours, SAMUEL W. KELLEY.

### Medical News.

**Hunter Robb** returned early in October from a four months' European trip.

**The St. Alexis Alumni Association** held the opening meeting at the Hollenden Hotel, Thursday evening, October 5, 1911. The program was as follows: 1. Infection of the Prostate, Frank Oakley. 2. Cerebrospinal Syphilis, J. S. Tierney.

**The Ashtabula County Medical Society** held its sixty-seventh regular meeting at Ashtabula, Tuesday, October 3, 1911. The program consisted of an address by W. T. Corlett, Cleveland, upon The Recognition and Management of the More Common Diseases of the Skin From the Viewpoint of the Family Physician. A large number of lantern slides were shown.

**The Muskingum County Medical Society** held its annual meeting at Zanesville, Wednesday evening, September 13. The election of officers for the ensuing year resulted as follows: President, E. C. Brush, Zanesville; Vice President, C. H. Higgins, Zanesville; Secretary-Treasurer, J. R. McDowell, Zanesville; Censor, W. A. Melick, Zanesville; Delegate, W. A. Melick; Alternate, D. C. Mathews, Zanesville. After the business meeting a buffet luncheon was served and short talks were given by Rev. W. L. Whallon; W. C. Bowers, Superintendent of Public Schools; and C. H. Higgins.



**The Muskingum County Medical Society** met Wednesday, October 11, at Zanesville. The evening was given over to the discussion of Hygiene. The paper of the evening was read by A. H. Wright, Professor of Chemistry at Muskingum College, New Concord, on the subject: "Hygiene in the Schools." The discussion was opened by D. E. Stephan, Zanesville, who took up especially the question of Sex Hygiene and whether or not it should be taught in the schools.

**The Thalias, a Toledo society** organized for the purpose of fighting tuberculosis, has been given \$540.29 by the city council of Toledo. This is the first official recognition given any humanitarian institution by the city of Toledo.

**F. A. Leslie, Toledo**, announces that he has discontinued general practice to enter into the nose, ear and throat field.

**The Board of Education of Toledo** has opened its open-air school with an attendance of 20.

**The Academy of Medicine of Toledo and Lucas County** opened its fall session with a rousing meeting, October 6.

**The Fremont School**, both public and parochial, were closed October 5 for two weeks because of diphtheria. Fifteen cases have been reported to the health officer, with no deaths.

**John D. O'Brien**, formerly Pathologist and Assistant Physician, Massillon State Hospital, has engaged in private practice in Canton.

**The Clinical Congress of Surgeons of North America** will hold its second annual meeting in Philadelphia, Pa., November 7-16, 1911. The program of the meeting, appearing in the October number of *Surgery, Gynecology and Obstetrics*, the official journal of the Congress, indicates that most unusual opportunities will be afforded for seeing a large amount of the best surgical work.

**The Tuscarawas County Medical Society** met at Uhrichsville, Tuesday, October 3. The program consisted of a round table on the subject of Headache, led by J. A. McCollam, Uhrichsville.

**Austin S. McKittrick**, Kenton, Ohio, has announced that he will limit his practice to surgery, consultation and office work.

**R. M. Tweedie**, formerly of Lakeside Hospital, Cleveland, has located in Sandusky, having opened an office in No. 4, Lea Block.

**The Oberlin Hospital** is installing a complete new sterilizing plant of the most approved patterns.

**Army Medical Corps Examinations:** The Surgeon General of the Army announces that preliminary examinations for the appointment of first lieutenants in the Army Medical Corps will be held on January 15, 1912. In order to perfect all necessary arrangements for the examination, applications must be complete and in possession of The Adjutant General at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present sixty-four vacancies in the Medical Corps of the Army.

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### Deaths.

**John S. Beck**, Dayton, Ohio, died October 19, aged 69.

**Charles H. Mueller**, Cincinnati, Ohio, died October 11, aged 33.

**Esrow B. Crow**, Ridgeway, Ohio, died October 12, aged 77.

**Arthur L. Osborn**, Norwalk, Ohio, died September 18, aged 64.

**Alva L. Paul**, Ottawa, Ohio, died September 18, aged 63.

**John W. Dodds**, Cincinnati, Ohio, died September 25, aged 51.

**Abraham W. Jones**, Westerville, Ohio, died September 21, aged 64.

**Louis W. Heydrich**, Toledo, Ohio, died September 15, aged 51.

# The Cleveland Medical Journal

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## **The Ethics of Contract Medical Practice and Its Economic Advantage to the Community.**

By R. E. SKEEL, M. D., Cleveland.

I confess that I enter upon the task which your committee has assigned me without any great degree of enthusiasm, first because my professional contact and first-hand knowledge of contract practice is very limited since I have never been engaged in any of its branches, and second because I feel that there are abuses in the profession itself which stand in greater need of correction. Nevertheless I shall endeavor to handle it as well as possible within my limitations, and those which your committee has placed upon me.

I take it that the term "contract practice" as we are using it implies a contract to do medical work in bulk as it were and at a fixed stipend, the physician agreeing to give his services to a corporation, beneficiary society, fraternal organization, lodge, or whatnot, or to the corporation employes, or lodge members and members' families for a given sum regardless of the amount of work he must do, in contrast to the customary method of charging an individual fee for an individual service.

In the abstract I presume a physician has as good a right to sell his services to an organization as to any *one* person either within or without that organization, so that we are not called upon to question the abstract right or wrong of contract practice; instead it is the practical working out of the plan with the abuses which it is found to produce together with those which we may logically expect to result from its continuance.

Basing our discussion upon the definition given above we can at once rule out certain types of medical practice which are

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*Read before the Academy of Medicine of Cleveland, October 20, 1911.*



done under contract, such as life insurance examinations or work done for corporations upon its employes, the contract for which stipulates the sum to be paid for each particular service rendered; and the contracts which require the entire time of the physician, such as in State hospitals, sanitariums, etc., but we have left a tremendous residuum of contract work in bulk for only a part of the contractor's time. This comprises the employment of health officers, district physicians and school inspectors by municipalities, the employment of surgeons by railway, manufacturing and other industrial corporations, the employment of physicians to attend to its members as an incident in the establishment of a genuine beneficiary organization and the employment of physicians by promoters of pseudo-beneficiary organizations whose scheme it is to sell the physician's services to members at a small sum per capita per year, paying him a lesser sum each year than is collected from its members, the promoters pocketing the difference as profit.

Municipal positions, like those of health officer, district physician and school inspector, are necessary and are contract positions which rarely take all of the physician's time. Some of them, particularly the latter, open up possibilities of unbounded abuse in the way of professional aggrandizement and political pull, but they are undoubted economic necessities to the community and they will not only continue but increase in importance and in the amount of work done. All likelihood of devious practices of any kind could be abolished were the work distributed to a few men selected for their ability only and giving their entire time to their municipal duties. In fact if all charitable medical work in a given community were done under municipal auspices by men serving the municipality on a good salary, or in hospitals in lieu of salary, for the opportunity of teaching which the position afforded, the teaching position being salaried, and if all other hospitals were made over into strictly private institutions, the tremendous waste now going on in the cost of administration of a multitude of part pay, part charity institutions would be abolished and the actual status of all hospitals would be improved.

Railways, steel mills, mines, and large manufacturing concerns of all kinds in which accidents are frequent and unavoidable, must have surgeons upon whom they can depend inasmuch

as it is utterly impossible to rely upon securing any doctor who may happen to be available. When physicians are employed in this manner for their entire time at a fair remuneration, and when the interests of the employer and the employe are identical, viz., to save life and limb and return the patient to work at the earliest possible moment, the writer can see no possible objection to the practice and the economic influence upon the community is nil. It is to be feared, however, that the matter is rarely so simple as the above would indicate. In many, perhaps the majority of instances, the surgeon is not employed for his entire time and the remuneration is ridiculously inadequate for the service supposed to be rendered. In addition he is called upon to act as a pseudo-detective, dividing his activities between looking after the life and health of his patient and protecting his employer from a subsequent suit for damages.

Certain forms of employers' liability insurance further complicate the question when the employing company is smaller, for while a surgeon may be regularly employed he is compensated only in so far as he is able to stretch his charge for first aid to cover all subsequent attendance. In any event the party to whom the services are rendered is not paying the bill, and so long as such confusion exists as to whom is responsible for industrial accidents, a similar confusion and difference of opinion is bound to exist as to what is really ethical in the relations between the physician, the patient and his employer.

Taking up next beneficiary organizations, lodges, etc., in which medical attention is purely incidental and the fees for which are paid in the lodge dues, the question is less complicated and depends entirely upon one point: the adequacy of remuneration and through this the character of service which the members receive. Good medical service depends upon native ability, education and thoroughness on the part of the physician, and in order to receive first class medical attention there must be sufficient compensation to allow of time for study and time to devote to the consideration of individual patients. If the pay given their physicians by these organizations is sufficient to permit of these, I again can see no ethical objection to the practice nor any decided effect upon the economics of the community. There may be and possibly are some fraternal organizations and lodges which fulfill these requirements, but if they do there must



be included within their dues a sufficient sum to provide the money therefor so that the lodge member is no money ahead at the end of the year, neither may he employ the physician of his choice and consequently the probabilities are very strong that a lodge under such circumstances would soon cease to exist if it continued to charge adequate dues to meet the conditions.

It is, however, a matter of common knowledge that the growth of fraternal organizations and lodge contract practice is based upon the presumption that medical attendance is free or approximately so, and it is also a matter of common knowledge that the average man falls over himself to obtain something for nothing. It is universally understood that the yearly salary of those doing lodge practice is diminutive in amount, so that the actual charge for visits and other forms of service are entirely inadequate to allow of thorough going good medical work and herein lies both the ethical and economic difficulty. The ethical difficulty may perhaps be somewhat modified by the fact that the physician may still give first class thorough going attention for 15 or 20 cents per visit if he has nothing else to do and feels that the legitimate advertising he obtains more than compensates for the difference between what he receives and what he earns. In the long run, however, he will be estimated as worth precisely what he receives. Sociologically it is absolutely bad practice to allow any one who should pay for something of value to obtain it without payment, and the effect of quasi-charity of this character upon a community undoubtedly demoralizes not only those who are its recipients, but all others who are aware of the facts. While I believe lodge practice to be therefore ethically and sociologically wrong, I fear that the profession as a whole is in no position to throw stones at those who hold such offices. The glass house in which the *organized* profession resides has some extremely thin walls and our lodge practicing brother may retort that it is better for the profession, for himself and for the community if he continue his practice and average 15 or 20 cents for his visit, than it is for the same patient to attend a dispensary and obtain the same service absolutely free of charge. He may also point to the fact that he has a precedent for his microscopic fees in the practice of some distinguished colleagues who must have material and so charge moderate fees, small fees, or no fees at all at the patient's behest and without regard to his financial

condition, for no better reason than to keep the material coming. It is possible he might dig up examples of rich corporations making hospital contracts through which, by paying for hospital beds, their employes could be cared for by renowned surgeons without cost. Altogether his reply might prove to be the rebound of a boomerang that would bump some very large and worthy heads.

In favor of the third class, viz., those who act as physicians to organizations promoted with no other end in view than that of selling medical services at less than they are worth and paying the physician a still smaller sum, nothing can be said in defense. Those who enter this scheme must go in with the deliberate intention of giving as little as they can and getting out of it as much as possible, and an appreciation of correct standards of medical practice is entirely beyond their ken.

Altogether there seems to be no immediate solution to a problem whose basic difficulty lies in the fact that four times as many physicians exist as are really necessary and that all must somehow eat and drink whether they can be merry or not.

Every organization must have some rules to govern it. The organized medical profession has rules not only to govern itself but the individual conduct of its members toward each other and toward the public at large, and these rules are embodied in the so-called Principles of Ethics of the American Medical Association. The individual advantages to be gained are not such that every medical man, even if he be one of the very first class, cares to subscribe to the rules governing the organized profession. He may for instance desire to advertise and if he be perfectly honest in his advertising there is nothing in the act that is derogatory to him although he cannot expect to be recognized as a part of the organization, since he does not accept and follow its rules. Personally I should regard him much more highly than the so-called ethical brother who advertised on the sly or put his advertising in the hands of a trusted agent.

The secret paying of commissions for patients is rampant, is in defiance of the Principles of Ethics and is positively dishonest besides. It is undermining the confidence formerly felt by the public in their professional attendants, but there is no particular effort made to root it out, first because it is hard to prove legally, and second because so-called big men are as guilty as the others. After all, is it not about time that the old and



complicated system of ethics was abolished and in its place substituted an agreement that one who wished to be a member of the organized profession should be honest in his relations to the public, his patients and his colleagues? Whatever the code may say, this is the only attitude which many can assume and in this light we may arrive at the following conclusions:

1. Many forms of contract practice are not only ethical but economically *necessary*. Such forms include whole time service in sanitariums, State hospitals, municipal and State health departments, life insurance companies, etc., with a part time service as actual employees of corporations, manufacturing industries, etc., in which the employer pays for the service an adequate remuneration.

2. That some forms are *undesirable*, such as contracts with lodges and other organizations which are in themselves good, but which pay their physicians so small a salary that his patients who ultimately pay the bill, do not receive adequate service. This should be righted if possible, but it is a very small mote in the eye of a profession which contains a number of fair sized beams that should be extracted before its vision is quite accurate.

3. That some contracts are *vicious* both ethically and economically and they include all those in which the employer, who is a promoter, starts an organization with the direct end in view of collecting small fees from its members promising adequate medical service in return, and who then hires the cheapest man he can obtain to trifle with the members' lives under his medical license. Such a medical man deserves no consideration whatever, no matter whether he is or is not in other respects a so-called ethical member of the profession.

314 Osborn Bldg.

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### The Economic Effect of Contract Medical Practice on the Medical Profession.

By J. E. TUCKERMAN, A. B., M. D., Cleveland.

To begin with it is well to understand what we mean by contract practice. It is self-evident that all medical practice is in the nature of a contract, implied if not expressed. (*Jour. A. M. A.*, Dec. 4, 1907, p. 228). This paper will not deal with the simple

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contract implied between a physician and his individual patient, which in law is established by his employment and response to a call. Even this apparently simple relationship may be exercised so as to infringe upon the rights of some one else. Private work, conducted for inadequate fees to patients able to pay, reacts upon the economic status of the whole profession. With this, however, we are not in this discussion concerned.

It is wise perhaps to inquire what is the average income of physicians. It is difficult to ascertain this with accuracy. There is a popular impression that physicians as a class are exceedingly well paid, and that their incomes place them in the ranks of the "well-off." As to large fees, it is said (*New York Sun*, Nov. 25, 1910) that there are four or five physicians in New York city with incomes of \$100,000 or more per annum, five or six with incomes between \$50,000 and \$60,000, and two hundred whose incomes range from \$10,000 to \$40,000. But as New York City has upward of 6,000 physicians, we may assume that the remaining 5,800 of them are not attaining undue affluence.

With some 140,000 physicians in the United States, one to every 650 people, or one to 200 families, statistics show an average income of \$75 per month, \$900 per annum. (*Pearson's*, Sept., 1911, p. 291). This average may be very low as compared with the actual conditions in this city for it is of course evident that the average is reduced by the low income of country practitioners. Yet were we to double this average, the income would be none too large when put to the task of meeting the expense of city life. Surely \$2,000 per annum is not an exorbitant return when the time necessary for preparation, and the expense of a medical education is considered.

On the basis of 650 individuals, or 200 families to each physician, an assessment of not less than one dollar per month per family, \$12 per year is essential to produce an income of \$2,400 per year. Considering that of the 650 individuals allotted in this computation, a possible one-third are not self supporting—we have the report of the Associated Charities that 130,000 individuals out of Cleveland's 600,000 are upon their calling list—this estimate is very conservative. While the calculation above is but an approximation, it will give us some basis for a comparison in considering certain glaring impositions of medical contract work.



That there is an economic necessity for medical contracts with railroad and other large corporations for the inspection, if not the care, of men in their employ, must be admitted. When the remuneration is commensurate with the service imposed, especially when the physician devotes the whole of his time to the interests of the railroad or corporation, there can be little complaint from the economic side. The main objection lies in the dual position assumed by the physician, which makes him an advocate for the railroad, while supposedly he is making the interest of the patient paramount. I cannot agree with those who condemn all contract work of this nature, although there is some point to their contention. They say: "We do not care whether the physician is underpaid or overpaid. We are attacking it because the principle underlying it all is unethical, unjust, and, in every case, injurious to the profession in general. The surgeon who holds a railroad contract holds it with the proviso that he cooperate with the railroad and work against the interests of the poor unfortunate who happens to come under his charge. This is, of course, a good thing for the railroad, a nice thing for the surgeon, since it nets him a yearly salary, but a very bad thing for the public. We found that, undoubtedly, this particular form of contract is the grandparent of the rest. In justice to our sense of fairness, we could not possibly take any action against the small offenders without attacking these polished violators of the ethical laws who are seemingly responsible for all the others." (*Jour. A. M. A.*, Aug. 19, 1911, p. 675. Report of Committee Appointed by the Erie County Medical Society, to Investigate Unethical Contract Practice.) Except in the instance of mining or lumber camps, where other physicians are not available, contracts with companies need not, and usually do not, include care of the families or of the men themselves in sickness other than accident.

Illustrating what might be considered adequate remuneration for this type of work, I cite an isolated mining camp removed from immediate civilization. In this camp the assessment was \$1.00 per month per employe and did not include the care of the men's families. The camp averaged 1,000 individuals, a majority of whom were single men. The head physician, after paying the necessary upkeep of the hospital and the salary of the physician working under him, could clear about \$300 a month. Even

with such favorable contracts, there is constantly an effort on the part of the company to keep progressively cutting down the pay for surgical attention to their men. This is especially liable to happen, and did happen in the incident mentioned, when the physician formerly in charge, leaves and a new man takes his place. The new contract is usually less favorable than the old.

It is not open to argument that an annual pass on a railway is not adequate or proper compensation for services rendered to a railway company. Where such railway positions become the incentive for competitive bidding between surgeons and the acceptance of inadequate fees, the economic status of the whole profession is lowered thereby. Many conscientious surgeons have overlooked this elemental economic fact.

In the case of shop contracts for first aid in accidents, more particularly in small concerns, and where the company is insured by an indemnifying company, which assumes responsibility for the payment of surgical attendance, the fees are frequently very much lower than such services would be rendered to individuals. In extenuation the plea is made that the pay is sure. Allowing however for the usual loss from dead accounts, the fees paid are still entirely inadequate. Individual physicians are by no means the only offenders in this respect, such contracts entered into by hospitals directly with the company or with the insurance company which provides for admission of patients to hospital beds at less than the cost of maintenance, and gives to them gratis the services of the staff, can only result in lowering the economic status of the profession. Such abuse could not exist except for the misdirected and unthinking altruism of the medical profession. By no stretch of the imagination can a corporation be deemed a fit subject for charitable gratuities. It is to the company, and not to the injured man that the bill is rendered. This inevitable accident charge should be included as a running expense of the company, and the profession and the public through their hospitals should not be burdened with that which by rights should be charged to the operating expense of every such business.

In not a few instances the physician's attendance is paid for by a stipulated sum for an uncertain amount of work. Such a contract amounts to a bet between the physician and the company as to which shall lose out.



In all contract accident work there is the ever present desire on the part of the employing companies to keep on progressively cutting down the remuneration for surgical attention to their men. This results in a further unsatisfactory status for the physician who is doing and is prepared to do this class of work. His tenure does not always depend upon the quality of services rendered.

Touching the remuneration received in insurance work, there are two divisions. The ordinary policies, the examination for which is paid for at the rate of \$3.00 to \$5.00 may be said to be adequate. I am inclined, however, to agree with the following statement: "The essence of a life insurance examination is a decision as to whether the applicant is a good risk or not, and essentially the same thorough and painstaking examination is required in every instance before the examiner can intelligently pass an opinion upon the character of the risk. If, to determine a fact the examiner is entitled to a fee of five dollars, then five dollars should be required from every company, whether it be an old line life company, an assessment company, or a fraternal organization, and the fee should be the same whether the policy is for \$500 or for \$50,000, as the requirements and responsibilities are the same in each case." (*Ind. State Med. Assn. Jour.*, Sept. 15, 1908, p. 361.) The examination referred to includes no microscopic examination of the urine. Clearly the medical profession ought to come to some definite understanding on this matter.

It must be self-evident that the remuneration is wholly inadequate and the economic standing of physicians lowered rather than enhanced by medical inspection for industrial insurance which pays 50 cents or less per inspection. I quote the following apt statement of the situation: "Club contract, sick benefit and fraternal insurance examination fees have been rightly condemned by medical societies; but so-called industrial insurance, the worst economic invasion ever projected into the body politic of this country, secures examinations called 'inspections' by doctors, for the munificent honorarium of 25 cents, 'two dimes and a half, gentlemen, or a quarter of a dollar per capita. These examinations require a visit to the home; inspection of hygienic, local and domestic environments; inspection of subject and antecedents, if there be any, witnessing the applicant's signature and certifying

to his or her age; returning to office, copying and mailing a report to the home office (the company magnanimously furnishing the stamps) and charging in the doctor's books 25 cents for the service. This by a medical graduate, a registered and licensed man, presumably in full possession of his faculties. Members of the hod-carriers union would spurn such remuneration.

"There is another form of examination, rarely demanded, for which fifty cents is paid; this is called an 'examination' and also demands expert educated skill of a high degree. The booklet of instructions for either 'inspection' or 'examination,' embraces thirty pages, and urges two-score specific topics on the examiner, requiring a finely educated visual and tactile sense, as well as an innate perspicacity to complete properly; urinalysis is not required, but that is about the only lapse from a standard blank, and the examiner gets 50 cents." (*Medical Economics: Jour. A. M. A.*, Feb. 11, 1911, p. 446.)

If such inspection is at all adequate from a medical standpoint, it is underpaid. If it is not necessary, the physician, by doing it, places himself upon a par with a mere inspector, who might be supposed to know if the individual in question were alive or not.

Examinations made for entrance to fraternal lodges and societies are, in all respects so far as data to be filled out is concerned, practically that which is required for ordinary old line insurance. It is difficult to understand why such service should not be paid for at like rates. Such examinations are, however, made at \$1.00 to \$1.50. It is true there may be a considerable temporary pecuniary return to the physician who makes certifications to sound physical condition based upon snapshot diagnosis, at \$1.00 per head, during the active upbuilding period of a new organization. That the examination is a farce as usually conducted can be learned by talking with the members themselves. "Doc. So-and-So has a snap signing papers at a dollar a sign," was the remark made to me by a member of an organization which is making an active campaign for new members. Further it is notorious that in certain lodges, electioneering is resorted to by the physicians desiring to be thus cheaply employed. Surely a wholesome spectacle for a self-respecting profession.

A still more serious abuse is their sick benefit system, which guarantees free medical service to a member and even to a



member's family at sums rarely exceeding \$2.00 per annum. What is oftentimes expected of the lodge physician is shown by the following quotation from the by-laws of one of these fraternal orders:

"Section 1. It shall be the duty of the lodge physician to attend, prescribe for, and perform such surgical work as may be necessary, on all members of the lodge, in good standing and their respective families, also all visiting members and their families, without extra charge, except in cases of confinement, and primary venereal and chronic diseases, or disabilities existing at the time the member made application for membership." (*Jour. A. M. A.*, Aug. 19, 1911, p. 674).

Flattering indeed to the medical profession is the intent of still another organization which, besides maintaining a club room, allowing \$7.00 per week sick benefit, paying \$100 in case of death, offers free medical service to the members and their families, all for the magnificent sum of 75 cents per month.

How utterly inadequate such payment is is evident when we refer to the fact shown in the earlier part of the paper that an assessment of not less than \$1.00 per month per family is the very lowest minimum that could be expected to give a living income to the physician. It requires no mathematical acumen to see that the physician doing lodge work at the prevailing rates must attend at least three times his quota of individuals to get a living wage. Moreover, it is current comment that certain lodge physicians are unavailable and cannot be gotten when called by the members. This speaks well for the integrity of the physician who agrees to do a certain thing for a certain accepted payment, and then does not do it. Evidently this form of service is bad, not only for the physician, but for the patient as well. These remarks do not apply to that portion of the physician's duties which are in the nature of sick-inspection to safeguard a lodge against imposition. For such service an adequate payment in the nature of a yearly amount might equitably be made by any lodge.

Concerning contracts with sick benefit and burial societies, it is sufficient to say that very few physicians can be found but who can see that the remuneration is not in any wise adequate.

Municipal contracts have never been upon a satisfactory

basis. The pay of ward physicians and school inspectors is not sufficient to procure the best men for these positions. A more serious objection is, that it is impossible for a physician to pursue both public and private duties with a singleness of purpose. Whether he does or does not use his public position for filling his private office, he is open to that temptation, and the charge that he does so will be made. His usefulness as a public servant is diminished by the suspicion in which he is held by physicians engaged wholly in private practice. It has even been said that school inspectors, while directing children to free clinics for fitting of glasses, have at the same time directed where these prescriptions shall be filled. The obvious inference, if true, is an evidence of grafting of a most petty sort.

In times of much sickness the district physician naturally pursues his private work to the neglect of his city work, nor can anything else be expected. On the other hand, he is imposed upon by individuals capable of paying who refuse to do so because they know he is a district physician.

Such conditions in municipal work surely do not add to the economic standing of the profession. There is only one remedy and that is the adoption of a system providing for adequately paid and full time physicians who have no private interests to serve. Such a system would temporarily, at least, reduce the number of medical men in public employ, but those remaining would be properly paid. With the increase in sanitation, the development of medical inspection of schools, the establishment of babies' dispensaries, the founding of maternity dispensaries and pregnancy clinics, the manning of tuberculosis dispensaries, and the development of clinics under the auspices of churches, there is ample room for the services of full time, full paid men. Unless the profession clearly understands and works toward this end they will find themselves filling these positions as public servants upon inadequate pay, and having no choice in the matter since these very activities will have lessened the field for private practice. While we may be inclined to give gratuitous services to individuals, there is no justification whatever for being the purveyors of charity to the City of Cleveland.

#### CONCLUSIONS.

There are two distinct elements entering into a consideration of the justice of so-called contract practice, as distinguished



from private practice. The first element is the ethical one. Contract practice in most instances makes the physician an advocate for the company employing him, as against the interests of the patient whom he is supposedly serving. The second element is the economic one, with which this paper has to deal. The whole question here is one of adequate compensation. We have found that the compensation for contract work is inadequate in almost all instances considered, and that it tends to become more and more inadequate through the economic pressure to which all laborers are being subjected, coincident with the development of large commercial interests. This condition has been allowed to rapidly come to the present acute state through: "Lack of knowledge of the ethics of medicine, professional jealousy, indifference of the older practitioners, the pernicious example set by some of the older and well-established practitioners, the overcrowding of the profession, the tolerance of this state of affairs by all medical societies, the commercialism of the age, and chief of all, the complete disorganization of the medical body." (*Jour. A. M. A.*, Aug. 19, 1911, p. 675.)

Whether the development of sanitation and the centralization of medical work is destined to reduce the number of physicians necessary to maintain health in our communities, is immaterial. It is, however, of vast economic importance that the profession address itself seriously to the problem of adequate compensation for those of its members who are destined to continue in the practice of medicine, or that shall hereafter enter upon it, irrespective of whether their activities are in public or private fields.

733 Osborn Bldg.

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## The Condition and Control of Contract Medical Practice in Other Cities of the Country.

By C. A. HAMANN, M. D., Cleveland.

The matter of contract practice has been agitating the medical profession for many years, and particularly of late. In Europe the alleged evils have been discussed with much vehemence and professional organizations have fought vigorously for the rights of the physician. The present agitation in England

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in connection with Lloyd George's bill has produced a flood of literature and has aroused physicians more than on any previous occasion.

In Germany, Austria and France the struggles have been long and violent. In this country, the matter has not been nearly as important a factor as abroad, though contract practice (I refer more particularly to lodge practice, and the medical ministrations in fraternal and friendly societies) has been increasing at a rapid rate. More and more organizations are being started, and our relations to these organizations must become the subject of discussion and if possible correct adjustment.

It seems to me evident that there is a growing tendency in the direction that the State and municipalities are assuming more and more the function of looking after the health and the diseases of the people, as witnessed for instance by the growth and development of health boards, school inspection, etc.

In our discussions here let us try to look the matter squarely in the face, and calmly use our judgment, unbiased and uninfluenced by personal considerations, feelings and prejudices. Such discussion I believe will be of value—and is in fact necessary, if only it is conducted in the proper spirit. The committee appointed by your president, has attempted to obtain data, and much labor has been expended, particularly by its energetic chairman.

The present writer has been supposed to gather data, concerning other cities. With the amount of time at my disposal and the difficulties in getting such information it has been hard to secure many facts. Had it been possible to visit other cities and study the subject more fully, I could of course have given you much more information; as it is, the facts that will be laid before you are very general in character and but meagre in detail, and have been obtained from the rather scanty literature available.

In most instances I have given the reports as they were presented, and have copied them almost verbatim. I have obtained some data concerning these subjects from Michigan. A committee investigating in this State found for example that railroad corporations there, as in most other States, employ surgeons who receive annual passes, and in some cases payment for the actual work done; there were few complaints that the pay was inadequate, or that the rights of other practitioners



were infringed upon. In Michigan the care of the employes in mines is almost universally by contract surgeons; in some localities there are extensive hospitals, with salaried chief surgeons and assistants. The compensation for this service is provided for by deducting a part of the employes' wages, 50c to \$1.00 per month for a single man and \$1.00 to \$2.00 per month for a man of family. In some places the employes are not satisfied with the service rendered, and in some they employ other than the contract service. Whether the profession is satisfied or not can not be learned. In Benton Harbor a manufacturing concern employing 300 men pays the regular local fee bill for the care of its injured employes.

A plate-glass factory employing 75 men has its employes cared for, medically and surgically for a fee to its physician of \$1.00 per month for a man with a family and 50c per month for a single man.

A concern in Wyandotte, employing 1,350 men, exacts from the men 50c per month, and furnishes contract medical service; another concern with 750 employes collects 10c per week from each for a like service.

A large company in Menominee furnishes medical and surgical service at a cost of 15c per month for the employe.

In Detroit, the Standard Life and Accident Co. has liability contracts with a number of factories and industries. This company pays two doctors a set salary, the amount of which could not be learned, for first surgical aid and for subsequent care and dressings. Many Detroit physicians who have some idea of the amount of work involved, claim that the salary paid is totally inadequate, and falls far short of the fees received in regular practice for like service.

The Aetna Life and Accident Co. doing a similar business for large factories pays the surgeons a percentage, usually 10% of an assessment, usually \$1.00 per month levied on the employes. In the opinion of the committee of the State Medical Society, not all phases of the contract system as operating between the physician and local industries or employer's liability companies are objectionable; and here, as in the railroad contract problem, the company must be conceded the right to secure for the injured employe proper and sufficient surgical service in order to protect itself from unjust liability claims. But when the system operates to degrade and cheapen the practice of medi-

cine and surgery, or tends to establish any other standard of competition than that of true professional worth and genuine efficiency it should be considered as reprehensible.

The National Casualty Co. of Detroit has a contract physician for a membership of 1,500, the amount paid him could not be ascertained. In Grand Rapids it has a membership of 100 and pays its physician 25c per week for each member.

The Phoenix Preferred Accident Co. pays its physicians 10% of the premium collected.

The U. S. Health and Accident Co. of Saginaw has a large membership and pays its doctors \$1.50 to \$3.00 per year, per member.

A large company in Indiana pays a physician \$30.00 per month to look after its members in Bay City. The same company has a membership of 1,500 in Jackson and pays a doctor \$150 per year to care for all members reporting at his office. Care and treatment are furnished free at the company's sanitarium in Detroit, where there are two resident physicians and one visiting surgeon.

In several other instances, the pay of the doctors is \$1.00 to \$1.25 per year for each member.

It was estimated that 2,300 of Battle Creek's population of 30,000 people are treated, under some form of contract practice, and 8,000 of the 30,000 people of Jackson. These figures give one an idea of the extent of this form of practice. And it is constantly increasing.

The Foresters, Eagles, Owls and Moose are continually at work seeking to increase their membership and to organize new lodges. Promoters working on a percentage basis are abroad in the land, seeking to lure people into their organizations, the chief inducement being the reduced cost of medical services and of burial.

The Michigan committee agreed that not all forms of contract practice in that State should be condemned; for instance that done for certain mining companies. The committee also found that in most instances local societies are quite unable to control the evil without serious danger of disruption.

Contract practice is of course more rampant in large cities than in small towns and in the country. On the East Side in New York, the prevalence of contract practice is perhaps greater than any where else.



Private clubs and organizations have been formed in many places, for the purpose of securing contract medical attendance. These are usually started by a physician. Some larger clubs of this kind usually style themselves Emergency Hospitals. Men are employed to canvass shops, stores and factories to secure members; for \$1.00 a year treatment at the office for medical or for minor surgical affections is furnished; perhaps a small additional sum is charged for drugs. House visits are not included.

In these private clubs the doctor is usually in full charge and makes his own rules and plans his commercial scheme as he sees fit. In these clubs the patient usually does not get as much for his dollar or two as does the lodge member. Just at random, here may be mentioned the size of one of the fraternal orders. The Eagles, founded in 1898 had in 1909, 2,200 lodges, with over 500,000 members; when to this number are added the families of the members, one can readily see the magnitude of the organization, and inasmuch as these people are served by so-called contract doctors, it is evident that a large part of the medical practice of this country is in their hands.

In many localities there are complaints regarding the manner of appointment of county physicians, their inadequate compensation, underbidding for the position, etc.

In a report from Rhode Island, I see that in Newport, out of a population of 25,000, 1,500 wage earners belong to lodges entitling them to a contract doctor. In some localities in that State the medical societies have made lodge doctors ineligible to membership, and the members are under agreement not to consult with them.

It was estimated that among the Jewish people of Providence one-third have contract doctors. A conference with a large number of medical men engaged in lodge and contract practice in the State of Rhode Island revealed the fact that in but a few instances was there an ardent advocate of the present system. From this State also come reports of underbidding for contract medical work.

Perhaps of all cities in this country the lodge practice evil is worst in New York on the lower East Side. During the past 10 or 15 years the conditions have become truly deplorable and degrading to the profession. First in the mode of obtaining the positions, for which there is active competition by methods which

are most despicable; and secondly in the mode of conducting the practice, which becomes a mere routine, slipshod and careless. There is scarcely an East Side laboring man who is not a member of one or other of the 1,500 or 2,000 lodges and receives his medical care from the lodge doctor.

As showing the feeling existing in the profession in one locality the following resolutions passed by the New York Fulton Co. Medical Society may be quoted:

"On and after the first day of January, 1905, no member of this society shall accept the position of club, society or organization physician or agree or continue to do any medical or surgical work for any club, society, or organization at a less rate than the regular or customary charges for like services rendered by other physicians for patients not members of such club, society or organization. Also, that in no case shall any physician agree to attend the families of the members of such club, society or organization at half price or a less price than the original rate.

"Nothing in this section shall be construed as preventing any member from attending the worthy poor at a less rate or to give free services to those who are too poor to pay anything, or acting as city, county or town physician, health officer or under political appointments.

"Any violation of this by-law shall be considered unprofessional conduct and render the member guilty thereof, liable to suspension or expulsion from this Society as the Society may determine."

Dr. R. E. Coughlin of Brooklyn, N. Y. (*Brooklyn Med. Jour.*, Sept., 1903) discusses the pros and cons of lodge practice and comes to the conclusion that contract service in medicine and surgery is not desirable from any point of view.

Of all so-called fraternal orders, none probably has such objectionable methods for the selection and payment of doctors as the Eagles. Physicians are coming to recognize this and are refusing to accept such positions. The order itself has recognized the difficulty of obtaining medical service, "except at such outrageous terms as will ultimately, if adhered to, bankrupt such aeries," in the words of the Grand Worthy President. This worthy gentleman has therefore evolved the following scheme: He has "prepared a list of physicians who are competent to serve as aerie physician and desire to change locality, and who will, if given a favorable contract by an aerie move to the com-



munities in which such aeries are located." The duties of the aerie physician, as defined in the by-laws, are that "he shall attend, prescribe for and perform such surgical work as may be necessary for all members of the aerie in good standing and their respective families, and that the words family or members of a family shall be understood as meaning a member, his wife and minor children and such other persons as reside with and are dependent upon and are actually supported by the member." He must also attend the meetings of the aerie and report the condition of sick members. He receives \$2.00 per year for each member and must pay a fine of \$1.00 when he fails to make a report.

It has been figured out that \$50.00 a month is about the average pay for this sort of work, and that about 1,200 people would have to be cared for.

It seems to me that the following, taken from the *Journal of the American Medical Association*, expresses concisely the main evil of objectionable contract practice, which is "the existence of a middleman who buys the physician's services at wholesale and sells them at retail, thus farming out the physician to the public under an agreement whereby the physician gets a pittance and the patient gets poor services, while the middleman alone who reaps the difference as his profit, is the gainer." If the question can be placed in this, the true light before both the public and the profession, there is little doubt as to the outcome."

In Northampton Co., Pennsylvania, the pay of contract physicians is 50c per month for an unmarried man, 75c for a married man and his entire family, increased occasionally to \$1.00 or \$1.25 if the patient resides some distance from the doctor. Originally this arrangement was for laboring men (in stone quarries), and the excuse given was that the poorer classes would be able to receive medical attention. Lately, however, this form of protection has extended to others than laborers, such as school teachers, clerks, and merchants, who are more than able to pay regular fees.

It seems to me that just here lies one of the dangers of the contract system: it is extended to those who should not receive medical attention at less than the regular fees. This of course cheapens our profession and acts in a detrimental way morally and on the influential side of members.

One may allude to the fact that the Christian Scientists, Osteopaths, etc., do not thus engage in contract work, at least no instances have come to my knowledge. The same is true of dentists, I believe.

In the anthracite coal region of Pennsylvania the Anthracite Union advertised for physicians to serve the miners and their families on a pro rata basis to be paid from the treasury of the Union. All the doctors in this region refused to tender their services.

Throughout the State of Pennsylvania the medical societies have been taking up this subject, a better organization of the profession is being sought, cooperation and concerted efforts are encouraged, and some express the belief that in time, all forms of contract practice will be discontinued. This is hardly to be hoped for it seems to me.

The Medico-Legal Society of Philadelphia has excluded all persons engaged in lodge practice from the society. Business associations are also being started among physicians which it is hoped will become general, draw the profession more closely together and make their interests mutual, thus elevating the social and ethical standard of the profession.

A physician in Evanston, Ill., states that in his section there is now about 500% more lodge practice than 15 or 20 years ago. This writer also believes that eventually we will come to have a universal contract practice, as Dr. Woods Hutchinson advocates.

In gathering the material for this brief paper, I have become more and more impressed with the growth of contract practice in all its forms, government, State, municipal, lodge and fraternal and private organizations. Medical socialism, so to speak, is progressing rapidly in this country. It is important for the medical profession to discuss the subject fully. For the younger men already in the profession, and for those who are students or are contemplating a medical career there is a particular need of careful consideration of the problems involved, for upon the mode of solution of these problems will depend much of their future.

I have also gathered the impression that contract practice, has come to stay, that in some form or forms it is a necessary economic institution, and that therefore, we must adapt ourselves



and submit to the inevitable, only let us try to establish such conditions in the way of appointments, control and compensation that the standing of the profession will be maintained at its proper level in all respects.

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### **Contract Practice in Foreign Countries.**

By W. B. CHAMBERLIN, M. D., Cleveland.

Whatever may be our personal opinion in regard to the merits of contract medical practice at the present time matters but little. There are two facts of which we must take cognizance: (1) It is an institution which is already firmly organized and flourishing in our midst. (2) It is an institution which has come to stay. With these facts in mind our thoughts and efforts should be directed to its proper regulation and control; having in mind not only the welfare of the medical profession but, what is of more import, the welfare of those to whom they minister. The institution with us is still comparatively young, and while we recognize its abuses and dangers, and perhaps appreciate the unfavorable outcome if certain tendencies remain unchecked, certainly our appreciation will be quickened by a brief survey of the contract system as it exists in foreign countries.

In the short time at my disposal it would be impossible to deal exhaustively with the system in general or to describe minutely those in vogue in the various countries. I have accordingly selected the systems of Austria, Germany and England as examples most likely to influence similar institutions among ourselves and will confine myself to the influence of the contract system upon the welfare of the medical profession, as being the topic in which we this evening are most interested.

In Austria, as the result of a law enacted in 1888, insurance against loss of pay by sickness or accident was made compulsory for all engaged in manufacturing, trade and commerce. Company officials were exempted if proof was furnished that they were protected in other ways. Officials of the government, State and municipality were further exempted, as were also sailors, foresters, farmers and house servants. This law of 1888,

although its many shortcomings are fully recognized and in spite of most earnest efforts for its amendment, is still in force in its original form today, 23 years after its enactment. This industrial insurance is administered by organizations known as *Krankenkassen*, which take their names from the limitations of their scope; *Genossenschaftskrankenkassen* administering to those in a certain trade and existing only in the large towns, *Bezirkskrankenkassen* to those of all trades residing in a certain district, *Betriebskrankenkassen* to those working for the same employer, etc. *Bruderladen* is an old name for associations of miners, while *Krankenvereine* are friendly societies which insure for a certain indemnity in case of illness but do not provide medical attention.

According to this law of 1888 the insured and their families receive free medical attention, care in childbirth and all medicines or other therapeutic measures. In addition the assured receives, in case of disability, 60% of his daily wage for a period of 20 weeks. Care in hospital may be considered a substitute for this amount. In case of death an additional amount is allowed for burial. An idea of the increasing popularity of the *Kassa* system may be gained from the following statistics. In 1890 there were 2,470 *Krankenkassen* with 1,548,825 members; in 1905 there were 2,934 *Krankenkassen* with 2,844,245 members. In other words, while the number of *Krankenkassen* had increased only 7.08%, the number of members had increased 83%. The inclusion of other societies would bring the total membership up to 3,082,669, while the inclusion of the families would give a total of over 4,000,000 people in Austria receiving free medical attention. This constitutes 15.4% of the entire population, while if the statistics are limited to the larger towns, the country districts being excluded, a conservative estimate places over 50% of the people as included among those who pay no direct fee for medical attention. The effect of such a system upon the medical profession may be deduced from the following.

Out of 9,204 physicians in Austria over 30% have an income of less than Kronen 1,200 (\$240) a year, 25% an income of K. 2,400-3,600 (\$480-720), 33% K. 3,600-7,200 (\$720-1,440), not 10% K. 7,200-12,000 (\$1,440-\$2,400), and only 300 physicians in all Austria have an income of more than K. 12,000 (\$2,400). In Vienna alone, out of 1,930 physicians in 1898, only 1,158, or a little more than 50%, had an income of more



than K. 1,200 (\$240). In Bohemia the conditions are still more unfavorable than in Austria. An idea of the financial reward to one engaged in the Kassa business may be gained from the related personal experience of one Gottlieb Pick of Aussig, whose monographs on the subject I can heartily recommend to those interested. After an experience of 15 years as physician for a Berzirkskrankenkassa he gives the following data for the year 1906. Number of members 8,448, cases of sickness 10,670. The compiler was only one of a number of physicians employed by the Kassa. In the following he counts an office call as 1 unit, a house visit as 2 units, special services such as bandages or operations as 2 units. In the year 1907 he treated 2,023 cases, making 397 house visits, 5,474 office calls and 527 special, a total of 7,996 units. For this he received the munificent sum of K. 2,211 (\$442.20), an average of 27.9 hellers (5.58 cents) per unit. As physician to the Betriebskrankenkassa his pay was slightly more. These figures agree with those of other districts and the country in general.

In Austria the control of the Kassa system is entirely in the hands of laymen, who neglect no opportunity to further reduce the miserable fees paid to the profession for their services. Under the present or Pauschal system a lump sum is paid to a physician or group of physicians for their services to the Kassa; a fixed amount of money for an indefinite amount of work. Little or no choice is allowed a member in selecting his physician. Much of the work is accordingly indifferently or poorly done and dissatisfaction on the part of members is frequent. Any demands for increased fees are met with indifference or flat refusal, for, with little or no organization on the part of the profession, the directors know but too well that a dozen are waiting to take the place of one who resigns.

Not only has the Kassa system reduced to an absurd minimum the fee which it pays for medical service, but, with no income limit to regulate Kassa membership, the influence of the Kassa has been to reduce medical fees in general. The cost of medical attendance per member per annum was K. 2.32 (46.4 cents) in 1890, but had risen to K. 3.21 (64.2 cents) in 1905. This includes the lay control of the Kassa which conservative estimates place at 20%, thus leaving in reality but K. 2.57 (42.4 cents) to be paid per member per annum for medical attendance. Not only the poor but frequently the well

to do, and even the rich take advantage of Kassa membership.

The demands of the physicians for the betterment of their conditions are in the main as follows:

- (1) Kassa membership to be dependent upon income.
- (2) Free choice by members among a fairly large number of physicians who have signified their willingness to do Kassa business.
- (3) Fee to be determined by agreement between Kassa and physicians as a whole, not with individuals.
- (4) In case of the Pauschal system, limitation of amount of work to be done for a certain sum.
- (5) Representation by the profession in the directorate of the Kassa and recommendation by the profession of those fitted to do Kassa work.

It requires only a casual perusal of current medical literature in Austria, or a slight acquaintance with the system at present in vogue, to convince one of the importance of the present struggle to the profession. It is virtually a question of life and death. The continuance of the present system can only mean a deteriorated medical profession with the ultimate baneful effect upon the community at large.

Current German medical literature is strangely silent on the subject of Kassa practice. With a censored press and the Kassa under State control the cause is perhaps not difficult to imagine. Two illuminating articles in our own literature by Wm. L. Holt, Vice-President of the American Society of Medical Sociology give a fairly clear idea of the situation. The first gives his personal observations in regard to the Kassa in Freiburg.

German industrial insurance is divided into three classes: (1) accident, (2) illness and (3) old age. There are in all some 23,000 different Kassen, with a membership of over 20,000,000. Insurance is compulsory on all whose income is less than \$1.60 per day or \$480 per year. This great system disburses to its beneficiaries \$400,000 per day or \$150,000,000 per year. To raise this enormous sum each laborer pays 2 2-3% of his daily wage, amounting to 2-3 of the total amount. The remaining 1-3 is paid by the employer. This insurance provides free medical attention in accident, sickness and maternity cases, free hospital care, free drugs, including spectacles, with allowances for disability, convalescence after childbirth, and funeral expenses



in case of death. For convalescent cases great sanatoria are provided in the Black Forest. In Freiburg free dentistry is also provided. Treatment in the various specialties, as well as surgical operations, is provided free in the university clinics.

The conditions in Freiburg may be taken as an example of those existing elsewhere. Here in 1909 there was a membership of 14,577 including 4,000 women. Out of 16,000 families 12,000 were insured. The fee bill is as follows. Office call 15c, house visit first time 32c, subsequent visits 24c, night visit 96c, minor surgical operations, such as passing a catheter or opening an abscess 24-48c additional, reducing a fracture, dislocation or strangulated hernia \$1.20, larger surgical operations \$2.40-\$3.60, normal childbirth \$1.20, difficult obstetric operations \$2.40-\$3.60. Usually the Pauschal or total amount set aside for medical fees is not sufficient and a corresponding reduction is made. In 1909 this reduction amounted to 13.8%. The total cost per member per annum was \$1.32. Druggists however received much better treatment than physicians, being required to make to Kassa members a reduction of 20% from the prices usually charged.

Under the title "Why German Lodge Doctors Strike" Dr. Holt gives some further interesting information. Strikes, it seems, have been fairly common among medical men in Germany for the past ten years. The most famous one was that in Leipsic in 1904. In 1904 the insured in Leipsic numbered 180,000. The fee scale was still that introduced in 1872, day visit 24c with mileage at 12c per kilometer extra, night visits 48c, office calls 19c, obstetric and surgical operations extra. Again this scale might not have been so bad if paid in full by the Kassa. Frequently the amount paid was only 40% of that charged; the average for a period of years being 58%. In 1904, the demands of the doctors for free choice by the patients of their attendant and for an increase in the Pauschal being refused, the entire profession promptly went on strike, all but three members ultimately joining. The result was free choice of doctors and the raising of the per capita tax to \$1.80. "So 375 organized lodge doctors raised the price of medical fees 66 2-3%."

At the present time great interest is being manifested by the profession in England in the introduction by Lloyd-George of the so called General Insurance Bill. The reading of this bill in parliament was received by all sides, without regard to

party, with the greatest enthusiasm. It is looked upon in many ways as the greatest measure before parliament in two generations. It provides for free medical attendance in accident, sickness and maternity cases and carries with it benefits for those incapacitated by sickness or accident; as well as those subjected to frequent periods of unemployment, where depression from commercial causes is most frequent. The total cost for the first year will be £24,500,000 (\$122,500,000). It is proposed to raise this enormous sum by a tax upon the men, their employers and the State. Whereas the State's contribution in the first year will be but £2,500,000 (\$12,500,000) it is proposed to make this contribution increasingly larger year by year. This insurance will be divided into two funds, (1) the compulsory and (2) the voluntary. Under the compulsory division will be embraced all employed who earn weekly wages or whose annual earnings are under £160 (\$800), the minimum for taxable incomes. Soldiers, sailors, teachers and certain casual laborers will be exempt though it is planned to make special provisions for these later. The men are to contribute 4 *d.* (8c) per week, women 3 *d.* (6c), the employer 3 *d.* (6c) and the State 2 *d.* (4c) per person. Persons earning under 15 *s.* (\$3.75) per week will contribute less, but their employer in such cases will contribute more. Those over 65 years will be exempt, while those over 50 years of age will receive reduced benefits. Under the voluntary class will be embraced small tradesmen and those who have no employers. Here the men will contribute 7 *d.* (14c) and the women 6 *d.* (12c) per week. This general insurance bill includes and extends benefits to approximately 15,000,000 persons. The allowance in cases of illness will be 10*s.* weekly to men and 7 *s.* 6 *d.* to women for a period of three months, thereafter 5 *s.* (\$1.25) per week to both, and a disability of 5 *s.* (\$1.25) per week. Persons under 16 will receive only medical attention.

The attitude of the medical profession toward the impending measure since its first reading seems to have undergone a decided change, if one can judge from the frequent editorials and communications in the British medical press. Whereas the measure was received at its reading with enthusiasm by the profession as well as the laity, before its specific details were published and considered, this enthusiasm has now changed and the



feeling of hope regarding Lloyd-George's attitude to the profession has given way to one of general distrust and antagonism.

Up to the present time industrial insurance in England has been voluntary, not compulsory, and all forms of industrial insurance have been under the control of the so-called Friendly Societies. In order to keep the cost of insurance low the plan of these societies, in England and elsewhere, has been not so much to economize in administration, as to drive sharp bargains with the profession for their services. With a profession already overcrowded and the medical colleges of the country each year producing an output which the country did not need, this has always been easily possible. A man in the insurance work had only to signify his unwillingness to continue at the same or even a reduced compensation. Dozens could immediately be found to take his place at practically whatever fee the directors of the society felt called upon to give. This fee at the present time amounts to 4s. (\$1.00) per member per annum, hardly the wages paid to cab drivers and laborers, and includes drugs, bandages and other therapeutic measures. The new measure proposes to divorce medical services from the dispensing of drugs, but only advocates an increase per person per annum to 6 s. (\$1.50), including both. So the feeling of hope of a fair treatment at the hands of the secretary has given way to one of antagonism and distrust. From many sources it is even being urged that the time is now ripe for a flat refusal of the profession to engage in contract practice on any other basis than the work done. Sir Alfred Pierce Gould, in a timely article in the *Lancet*, urges the profession as a whole to have nothing whatever to do with contract practice, but to insist upon a treatment similar to that afforded nurses, landlords and tradesmen; while a German correspondent in the same journal regrets the retention of the per capita basis, which offers a fixed and extremely low amount per individual for an unlimited amount of work, and asserts that the British medical man is asked to begin work at a wage which his German brother has already found niggardly and insufficient. German statistics, according to this writer show that the actual cost of medical attendance and drugs is 10 s. 5½d. (\$2.67) per member per annum. Certainly the German profession is not overpaid.

As a result of the impending measure the profession in

England has been aroused and united in a way never before realized. Mass meetings have been held throughout the country and the attitude of the government toward the profession condemned by the British Medical Association, the General Medical Council, the Royal College of Physicians, the Royal College of Surgeons and many other societies of scarcely less prominence. In response to invitation the Chancellor has appeared before the members of the British Medical Association and, while certain demands of the profession were acceded to, he declared his utter inability to fix a wage limit for industrial workers. The demands of the British Medical Association at the present time are in brief as follows:

(1) Insurance to be extended only to those having an income under £2 (\$10.00) per week.

(2) Free choice among a fairly large number of medical men previously appointed.

(3) Medical and maternal assistance to be regulated and administered by a Local Health Commission and not by the Friendly Societies.

(4) The method of remuneration to be adopted by the Local Health Commission in accordance with the preference of a majority of the profession in a given district.

(5) Medical remuneration to be what the profession considers adequate, having due regard to the duties to be performed and other conditions of service.

(6) Adequate medical representation on the various committees and boards of directors.

What attitude the government will take toward these demands is as yet unknown. Certain it is that a united medical profession will be in a position to demand a scale of prices commensurate with the service rendered and befitting the dignity of a profession which today is making greater demands upon its members, not only in preliminary training but also in subsequent effort and self sacrifice, than any other calling or profession in the world.

Such, we see, has been the effect of contract practice upon the profession in foreign countries. If statistics with us were as carefully compiled and statements honestly given by members of the profession, would we not perhaps find that conditions in many instances are little or no better than those abroad?



How many surgeons in the United States today are doing a vast amount of work for a great railway corporation, the only compensation being in many instances an annual pass which they never use? The etiology and the disease, which at no very remote day threatens the life of the profession, is easily recognized. Should not the therapeutic measure be equally plain? A united medical profession, here as in England, can say to industrial organizations and brow-beating insurance companies, "Reduce to a minimum, if you will, the cost of industrial insurance, but this reduction in cost, this underbidding of your competitors in order to gain business, must not be by the absurd reduction of medical fees. It must not be at the expense of the medical profession."

## REFERENCES.

Holt: Critic and Guide, Mar. 1911, Aug. 1911.

Lamberger: Wiener med. Presse, 1909.

Pick: Prager med. Wochenschrift, XXXIII, 1908.

Gesetzentwurf betreffend die Socialversicherung Wien, 1909.

Prager med. Wochenschrift, XXXIV, Oct. 1909; XXXVI, July, 1911.

Lancet, 1911, May 13, pp. 1289, 1299. May 20, pp. 1362, 1380. May 27, pp. 1435, 1442, 1445. June 3, pp. 1509, 1518, 1532, 1536, 1541. June 10, pp. 1585, 1604, 1611, 1616. June 17, pp. 1652, 1660, 1664, 1682. June 24, pp. 1711, 1716, 1724, 1731.

*Osborn Bldg.*

### Primary Syphilis: Advantage of Early Diagnosis, Diagnostic Measures, and Treatment.

By CLYDE L. CUMMER, M. D., and RICHARD DEXTER, M. D.,  
Cleveland.

The importance of the early diagnosis of syphilis has been realized as long as the nature of the disease has been understood, but an early and definite diagnosis has not been possible. Until the last five years the practitioner who was consulted by a patient with an ulcer which resembled a chancre had two alternatives: he might pursue an expectant course, rigorously refraining from the administration of mercury and awaiting secondary symptoms, or he might start antisyphilitic treatment at once.

In withholding treatment until the secondary signs had appeared, the practitioner was following a plan which at that time was upheld by the best authorities. He was enabled to make

a diagnosis in the majority of cases, tardy though it might be. If the lesion were not syphilitic, the patient was saved from what would have been a protracted and unnecessary course of mercury. On the other hand if the second course were chosen, he saved the patient from becoming thoroughly saturated with syphilitic virus, *provided* he had been infected with syphilis. Who ever knew? Many a poor victim has taken mercury for years for a phantom disease, and has become one of a class of pitiable neurasthenics, a syphilophobe.

Both courses were far from ideal. Even if treatment is withheld and the secondary signs fail to develop, the medical attendant has no right to assure his patient that he has not been infected with lues. It is quite possible that the disease has run an atypical course and may flare up years later with signs of a degenerative process in the central nervous system.

Two cases will serve to illustrate the tragic outcome of syphilitic infection improperly cared for in the early stage. Mr. McA. had had a single genital sore eight years ago. It had been cauterized and no other treatment was used, either then or later. There was no subsequent manifestation of syphilis in the mucous membranes or in the skin. When first seen by us, however, he had had headache, incontinence of urine, Argyll-Robertson pupils, and other signs of a cerebrospinal lues.

Mr. P. B. gave a history of having a sore of doubtful nature on the penis 20 years previously. Very little treatment was taken on account of the uncertainty of the diagnosis. He was married and had one healthy child. In August, 1910, he began to have excruciatingly severe pain in the right arm, which proved to be the first symptom of a rapidly progressing taboparesis. That syphilis was the underlying factor in both of these cases was shown by the presence of a strongly positive Wassermann reaction.

Today the conscientious physician need not be placed in the quandary in which he found himself five years ago. While differentiation of an early lesion on what are termed clinical grounds may be possible for some observers of large experience, it must remain a matter of grave uncertainty for the majority of us when left dependent upon the unaided senses.

Then too there are many physicians, particularly those who have been trained in scientific methods, who desire something



more than the evidence which is presented to the eye and to the palpating fingers before passing final judgment. The discovery of the etiological factor of syphilis in 1905 not only gave the profession a new understanding of the life history of the disease, but furnished us with a ready and an accurate means of diagnosis. The description of the Wassermann reaction supplemented this first discovery in every way.

Regarding these two methods of diagnosis, an enormous literature has been written. During the past 18 months it has been our duty to examine a large number of patients who were syphilitic or thought to be syphilitic. At every turn some striking case impressed upon us the urgent necessity for making an early and certain diagnosis. Examples constantly recurred which enforced this lesson.

Among those which came to our notice were a number in the earliest stage of syphilis. We wish to report these cases with especial reference to the results of the examination of the blood by means of the Wassermann reaction and of the search for *Spirochaeta pallida* in the initial lesion, in order that some estimate may be formed of the value of these two procedures in the early diagnosis of syphilis.

During this time we have seen 38 cases of syphilis in the primary stage in which we have obtained sufficient history and other evidence to draw conclusions. The initial lesions were distributed as follows: Genital 30, lip 6, tonsil 2.

These figures serve to indicate the relative frequency of extragenital chancres; the large number of which (21%) is extremely suggestive taken in conjunction with the small number of syphilitics in the later stages who give a history of an extragenital initial lesion. Were the diagnoses overlooked entirely in many such cases; or did the patient fail to seek medical aid, paying scant attention to the lesions which did not occur in the classic position?

The technic used in performing the Wassermann reaction is the modification employed by Swift<sup>1</sup>. An alcoholic extract of syphilitic liver was used as an antigen. The search for spirochetes was conducted with the aid of the dark-field condenser. A lengthy description of this device for illuminating microscopic objects is unnecessary at this time. Ample references may be found in the current literature<sup>2</sup>. It is of extreme importance

that the lesion be not cauterized or treated with mercurial applications of any sort, for the use of a mercurial dusting powder or ointment will suffice sometimes to render a search for spirochetes useless. It goes without saying that the patient should receive no mercury until the diagnosis has been made, for not only will it mask the symptoms, but it will also very often vitiate the results of the Wassermann reaction.

The prerequisite for success in making the search for spirochetes is obtaining "irritation serum" from the deeper layers, avoiding surface contamination. The lesions were carefully cleaned with sterile normal salt solution on pledgets of cotton and then were scraped with a dull curette. If serum failed to flow freely, passive hyperemia was induced by the application of a small suction cup. After removing blood, the comparatively clear serum which finally appeared was taken up with a platinum loop or a capillary pipette. A drop or two was mixed with a drop of normal saline solution and examined at once. By the use of the dark-field condenser the organisms can be seen in the living state and their movements carefully studied. This makes identification from the other spirochetes very simple. With a limited experience, there is no danger of mistaking *Spirochaeta pallida* for the other varieties.

Those who have many examinations to make prefer this method because an opinion may be rendered in a few minutes.

Various staining methods, however, may be employed and commend themselves to a worker for whom a dark field condenser would represent an unjustifiable expense. We have found Giemsa's stain\* very satisfactory. In fact there is no reason why the practitioner who has a good working knowledge of laboratory

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\* *Giemsa's Stain*: This stain should be secured from reliable manufacturers. It is prepared as follows:

Azur II Eosin.....	3 grams
Azur II .....	0.8 grams
Glycerin (Merck's C. P.).....	250 grams
Methyl alcohol (Kahlbaum's).....	250 grams

In mixing the stain for use, all glassware should be thoroughly cleaned with distilled water and then with alcohol to remove any of the precipitated dye. Mix 10 c. c. of distilled water with 10 drops of the stain. If an intense stain is desired, add 10 drops of a 0.1% solution (in water) of potassium carbonate. The stain must be mixed freshly in this manner each time. It may then be put in a flat glass vessel with a tightly fitting cover (e. g., Stender dish).



methods and a microscope supplied with an oil-immersion lens cannot make this search *provided* that the irritation serum is obtained as directed. This is essential.

The serum is allowed to dry on a coverslip and is then fixed by covering with methyl alcohol (Merck's highest purity) for two minutes. The film is then floated on the prepared stain, the smeared surface resting on the staining fluid, and it is allowed to remain for 24 hours. *Spirochaeta pallida* appears as a dark-violet or purple closely-curved spiral, the length being one and one-half to three times the diameter of an erythrocyte. The turns are close and numerous, ranging from 8 to 26 in each spirochete.

The examination for the spirochetes is the method par excellence during the early days of the lesion. At this time the blood has not developed the substance which gives the Wassermann reaction whereas the early lesions are those which yield the organisms in the largest numbers. Unfortunately, we were unable to carry out the search for the organisms in our early work but have done so for the last six months. We have examined 16 cases in the first four weeks following the appearance of the chancre and have discovered the organism in all but three. The following table will serve to classify the cases:

Examinations for Spirochetes.

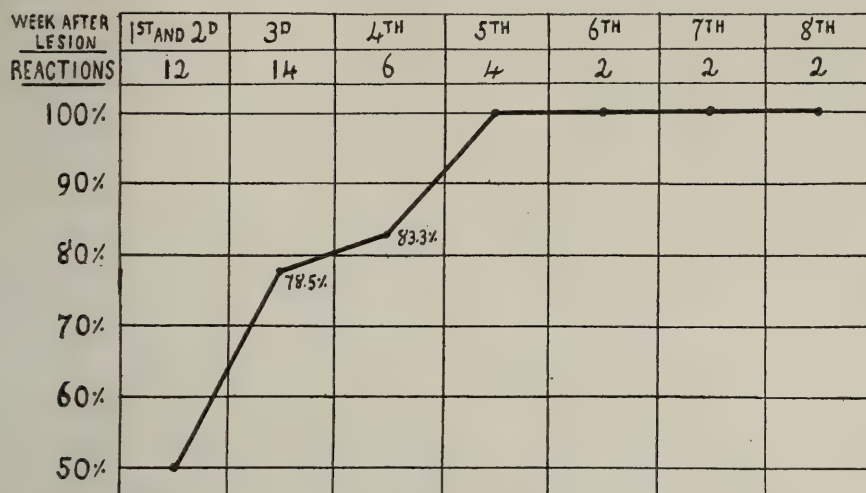
Duration of Lesion.	Total Number of Cases.	Spirochetes Found.
During first week .....	2	2
During second week .....	6	5
During third week .....	5	3
During fourth week .....	3	3
After fourth week .....	1	0
Total during first two weeks.....	8	7
Total during first four weeks.....	16	13

The Wassermann reaction we have used in a larger number of cases (36). Reactions were repeated in seven cases. The chart shows graphically the results we have obtained with this method. In addition to the reactions charted, we examined one case 19 weeks after the appearance of the initial lesion. The reaction had been negative during the third week but upon the second examination it was positive. No secondary signs had been noticed by the patient.

During the first two weeks following the appearance of the lesion there were 12 cases, with six positive, or 50%. This may

be contrasted with the results of the spirochete examinations during the same period of the disease. With this method eight

# PERCENTAGE OF POSITIVE WASSERMANN REACTIONS IN PRIMARY SYPHILIS.



cases were examined during this period and the organisms were found in seven, or 87.5%.

Grouping the cases in another way we find that in the first four weeks, there were 32 cases in which Wassermann reactions were performed; 22 of these, or 68.7%, gave a positive result. During the same weeks of the disease a search for spirochetes was made in 16 cases, and they were found in 13, or 81.2%. Even here, finding the spirochetes would be more satisfactory if only one procedure were available, but the Wassermann serves to detect some cases in which a search for spirochetes is unavailing.

Forty-three reactions were performed on 36 cases. There were seven cases which were negative on the first examination but were reexamined before the appearance of the secondary signs. Out of 36 cases examined, a positive reaction was obtained eventually *before the appearance of the secondary signs* in 33 cases, 91.6%. We give here the results of other workers in this field<sup>3</sup>:

	No. of cases.	Percent. positive.
Collected by Noguchi .....	416	69.8
Noguchi (by his own method).....	70	92.8
Swift .....	21	81.0
Collected by Bruck.....	520	64.4
Bruck, Stern, Merz, and Grosser.....	111	72.1
Kaplan .....	231	86.9



The analysis of Kaplan's\* cases is very interesting:

Primary lues.	Number of cases.	Number positive.	Percent. positive.
Less than 3 wks. duration. No mercurial treatment.....	101	90	89
Less than 3 wks. duration. After mercurial treatment.....	20	12	60
More than 3 wks. duration. No mercurial treatment.....	74	72	97
More than 3 wks. duration. After mercurial treatment.....	36	26	72

During and after the fourth week, however, the Wassermann reaction has been positive in all but one of 17 tests quoted here. Furthermore, at this time the local lesion frequently begins to heal spontaneously and there is sufficient fibrous tissue present to prevent the oozing from the deeper layers of the irritation serum" which is absolutely necessary if the organisms are to be recovered. The hunt for treponemata becomes less fruitful as time goes on.

As instances of the usefulness of one test or the other, we might call attention to the six lip and two tonsillar chancres, which might not be diagnosed readily under ordinary circumstances. Two of these were due to cuts inflicted by barbers. One of the tonsil cases was peculiar in regard to history. The patient had had a throat affection about eight weeks previous to the time when we saw him. From his history, it would appear that he had suffered with an attack of acute follicular tonsillitis. The physician who attended him made applications to the tonsils and the condition disappeared. Four weeks later his throat again became sore. When our examination was made, both tonsils were enlarged, indurated, and presented ulcerated surfaces with a thin, translucent, grayish-white coating. *Spirochaetae pallidae* were found and the Wassermann reaction was strongly positive.

It may be seen that the two tests serve to supplement each other completely, the bacteriological examination yielding better results in the first two or three weeks, while the serological becomes more valuable from the fourth week on. By performing both at the same time, one can give a very definite opinion, as the following list of cases in which both tests were performed will show:

Serial No.	Location of lesion.	Duration of lesion.	Result of Wasserman	Result of spiro. exam.	Remarks.
8	Penis	2 wks.	—	Present.	1 week later Wassermann ++ Wassermann +++ at end of 4 wks.
17	Penis	10 dys.	—	Numerous.	
18	Penis	3 wks.	++++	Not found.	
20	Lip	3 wks.	++++	Numerous.	Had used HgCl <sub>2</sub> wash locally. Wassermann + 1 week later.
25	Lip	6 wks.	++++	Not found.	
26	Lip	2 wks.	—	Not found.	
28	Penis	3 dys.	—	Present.	
29	Intraurethral	1 wk.	—	Present.	
31	Tonsil	4 wks.	++	Present.	
33	Tonsil	4 wks.	++++	Present.	
34	Penis	11 dys.	++++	Present.	
35	Lip	9 dys.	++	Not found.	
36	Penis	7 wks.	++++	Present.	
37	Penis	3 wks.	++++	Present.	
38	Penis	3 wks.	++++	Not found.	

## TREATMENT.

The treatment should be highly intensive in the early stage. The whole aim should be the prompt overwhelming and destruction of the spirochetes. It is of the utmost importance that this should be done immediately so that the constitutional invasion may be as slight as possible. At the best, the chances are that no matter how early an initial lesion is seen, there is even than a general infection.

It would seem that with salvarsan at our disposal, we have what may prove to be an ideal measure of accomplishing this result. There can be no doubt of its effect on the visible lesions when given intravenously. Even now, however, it is generally recognized that one dose cannot be relied upon to effect a cure. After the use of this measure mercury should be urged, either by inunctions or still better, by intramuscular injections. As far as we can judge from our experience, treatment by mouth is rarely more than palliative. The injections are to be preferred to the inunctions for the simple reason that the medical attendant knows that the patient is getting the mercury when he himself injects it.



The choice between the soluble and insoluble preparations of mercury depends upon a number of factors, an important one being the number of times the patient may be able to see his medical adviser weekly. The superiority of one form over the other is a moot question, and final authoritative opinion has not crystallized. From a practical standpoint the insoluble preparations have the decided advantage of requiring injection only once or twice weekly. Either form should be administered for two or three months. Should there be no active signs then, the Wassermann reaction may be done. This will serve to give some idea of the manner in which the patient is responding to treatment. The patient may then be given a period of four weeks without treatment, provided no active signs are present. At the end of this time, the Wassermann reaction should be done. If it is positive, the intramuscular injections should be begun again, while a negative reaction would probably render it safe to rely upon treatment by mouth.

Some form of mercurial treatment should be kept up throughout the first year, and at intervals during the second year. Before the patient is finally discharged as cured, there should be a report of at least three negative Wassermann reactions scattered through the first part of the third year.

It would seem that a method of this sort, based as it is upon the best of our present scientific knowledge, should commend itself to those who wish to escape the rule of thumb.

At present the entire question of treatment, of the manner in which it should be given, of whether mercury or salvarsan, or both, should be used, and of the duration of treatment, is unsettled, and must remain so for many years, until we have had an opportunity to observe the late results of the different methods which are being tested now. The only guide which we have to treatment is the Wassermann reaction, and its results should be interpreted as one would interpret the presence or absence of certain symptoms, for it is itself only a symptom. To be sure it is the most definite one we have. A positive reaction is an absolute and imperative indication for treatment. A negative reaction, however, cannot be accepted as an indication that treatment can be withheld. If it appears a month or six weeks after the cessation of mercurial medication with a patient who has previously shown a positive reaction, it may be accepted as an

indication that the patient is responding well. *A single negative reaction cannot be used as a sign of complete cure.* Three negative reactions separated by intervals of four months through a period of a year when the patient has taken no mercury may be taken as evidence of a cure in the absence of clinical signs.

It hardly seems necessary to dwell upon the importance of early diagnosis. It is important from the standpoint of the patient's family, the community at large, and the patient himself. Early recognition with appropriate urgent treatment would convert those who would otherwise be spirochete spreaders into comparatively harmless individuals. Diagnosis in the primary stage with the prompt institution of treatment, by preventing the development of the highly infectious mucous patches, would render impossible many cases of innocent infection and such epidemics as the one reported recently<sup>5</sup>. Think of the difference from the patient's standpoint: instead of from four to six weeks of anxious and miserable waiting for the decisive rash, he is enabled to know what to expect and to receive rational treatment at once.

#### SUMMARY.

In conclusion, we have tried to call attention to:—

The necessity for making early and incontrovertible diagnosis of syphilis before the appearance of secondary signs.

The impossibility of making such a diagnosis in the early stages on so-called "clinical grounds" alone, on account of the appreciable number of patients who run atypical courses, never showing secondary manifestations but developing late signs in the central nervous system or cardiovascular system.

The reason for refraining from the cauterization of the lesion, from the local application of mercury, and from its systemic administration until a diagnosis has been made.

The superiority of the microscopic demonstration of the organisms as a diagnostic measure in the first two weeks.

The availability of this method to the practitioner who is willing to devote a moderate amount of time to learning its technique and possesses a fundamental knowledge of clinical microscopy.

The increasing usefulness of the Wassermann reaction as time elapses from the onset of the lesion.

The manner in which the Wassermann reaction and the hunt for spirochetes supplement each other.



The indication for prompt intensive treatment, and the desirability of gauging the effect of treatment by the repeated use of the Wassermann reaction.

We wish to take this means of expressing our gratitude to Prof. George N. Stewart, Director of the H. K. Cushing Laboratory for the assistance which he has given throughout the course of our work in his laboratory. We wish to thank the chiefs of the various clinics of the Dispensary of Lakeside Hospital and Western Reserve University, from which we have obtained a considerable portion of the material upon which this paper is based. We are under deep obligations to Dr. C. W. Wille, Passed Assistant Surgeon in charge of the United States Marine Hospital at Cleveland, for the privilege of studying a number of cases under his care and for his aid.

#### REFERENCES.

1. Swift: International Clinics, Twentieth Series, Vol. I.
2. Coles: Brit. Med. Jour., 1909, Vol. I, p. 1117.  
Stone: Medical Record, 1909, Vol. LXXV, p. 638.  
Bayly: Practitioner, 1910, Vol. LXXXIV, p. 228.
3. Pearce: Archives. Int. Med., 1910, Vol. VI, p. 478.
4. Kaplan: Jour. A. M. A., 1910, Vol. LV, p. 1952.
5. Schamberg: Jour. A. M. A., 1911, Vol. LVII, p. 783.  
*602 Rose Building.*

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### The Proposed Deletions From the Pharmacopeia.

By TORALD SOLLMANN, M. D., Cleveland.

The pharmacopeial revision committee has at last published a provisional report on the proposed deletions and additions (*Jour. A. M. A.*, Sept, 16, 1911, *Amer. Jour. of Pharmacy*, Oct. 1911), and it is the object of this paper to attempt an explanation of the general significance of this report. Since the matter of additions is still in a very unsettled state, I shall confine myself wholly to the proposed deletions.

The first matter which requires explanation is the long delay in the appearance of this report. This is due to several causes: In the first place, the subcommittee on scope wished to do a thorough piece of work, and this took time. Whether all this work was necessary, whether the game was worth the candle, is another question which you may answer for yourselves. The subcommittee, be it understood, labored under the impression

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*Read before the Medico-Pharmaceutical Section of the Academy of Medicine of Cleveland, October 27, 1911.*

that its work would be taken seriously and therefore should be done well. The executive committee, however, went over the entire ground again, and this naturally consumed more time. This illustrates the importance which is attached to the subject. Finally, the executive committee does not favor publication whilst a subject is under actual discussion, and the method of procedure is such that discussion is practically unlimited.

Whilst I regret the delay, I feel that I must protest against saddling this upon the subcommittee on scope. Its chairman, Dr. Cohen, and its members worked very diligently and seriously, doing a difficult task to the best of their ability, and I do not believe that the committee, as constituted, could have done the work which it did, in a shorter time. Nor was it true that this delay in publishing the report need to have retarded the work of the other subcommittees. For the admission of the really important drugs was accomplished months ago—though it was not published—and this contained enough material to keep all the subcommittees very busy in the interim. If the revision is not proceeding as rapidly as it might, the fault lies with the rather unsystematic methods of procedure; with the often interminable delays in securing a decisive vote; with the consequent accumulation of unfinished business; with the indefinite functions and relations of the subcommittees, their chairmen, the executive committee, the general chairman and the general revision committee. When these functions are not defined, when no one is responsible for any one thing, and when everyone shares the responsibility for every little detail, it cannot be expected that progress will be very rapid. To enter further into this subject would open up a wide field for discussion, which is not my present purpose. I have touched upon it only because it may help to explain some features of the present report which might otherwise be obscure.

I would next explain the way in which the report was prepared and has assumed its present shape. The whole subject of admission and deletions was placed primarily in the hands of a subcommittee of scope, appointed by the general chairman. This committee originally comprised ten members, but soon sustained a serious loss by the death of Professor Hallberg. As finally constituted, it consisted of four practicing physicians (Cohen, Marvel, Osborne and Wood), two pharmacologists (Hunt and Sollmann); two importers, wholesalers and manufacturers (Dohme



and Plaut), and a pharmacognosist (Rusby). Its membership was fairly representative of the various current views of the proper scope of a pharmacopeia.

The first step of this committee was to select the important substances about which there could be no difference of opinion. This list was promptly adopted, ratified by the executive committee and assigned to the other committees for elaboration.

The next step was the establishment of the general principles which would determine the admissibility of the more doubtful drugs. After much discussion, it was agreed to judge admissions by "therapeutic usefulness and pharmaceutic necessity" and this was ratified by the executive committee. Since "pharmaceutic necessity" was meant to apply to the admission of such substances as are pharmaceutically necessary for making the therapeutically desirable preparations, there is in fact only one principle of admission, namely "therapeutic usefulness." This will be considered a distinct advance by those who believe that quackery is out of place in a standard scientific book.

Of course the term "therapeutic usefulness" is so vague that it may still cover a multitude of sins—but the concession of it, as the practical as well as ideal standard, is worth while. In fact, every one had his own conception of the meaning of the phrase and of the standard by which therapeutic usefulness should be judged; and despite much discussion, these divergent opinions could not be reduced to a common factor—a result which could perhaps be predicted. So the matter had to be left to the judgment of the individual members of the subcommittee, then of the executive committee, and now the general public may have its inning.

These principles having been adopted, the subcommittee proceeded to discuss quite fully the merits of every individual drug in the pharmacopeia. This being done, a vote was taken, and finally Dr. Cohen transmitted the full discussion and vote, together with his personal comments thereon, to the executive committee. Here the process was repeated; again a full discussion and finally a vote. This vote of the executive committee, which is the basis of the published report, differed in many and important particulars from the vote of the subcommittee on scope. This subcommittee, although it was created to deal with the matter of admissions and deletions, is therefore *not* responsible for the list adopted, except indirectly, namely in so far as

individual members of the executive committee may have been more or less impressed by the discussion. This is a rather important point. If "therapeutic usefulness" is to be the guiding principle, it would seem that the medical members of the revision committee should have the preponderant vote in deciding admissions. This was the case in the subcommittee, of which two-thirds are identified with the medical profession; whilst the medical representation on the executive committee is but one-fifth. In other words, the judgment of therapeutic questions was taken away from the medical men and placed in the hands of the pharmacists.

This is reflected in the result; for to my mind, the original report of the subcommittee has suffered, rather than gained, in passing through the executive committee. In this, many will disagree with me, but my opinion is not purely personal, for it is largely based upon the relative conformity of the two reports with the collective opinion of the medical teachers of therapeutics, pharmacology and materia medica. This was canvassed in advance of the pharmacopeial convention, by a special committee of the American Medical Association. The result showed a decided leaning toward restriction. The majority of the medical teachers who voted—most of them, of course, being active practitioners—recommended the deletion of some 280 or about 30% of the 957 substances which are official in the present pharmacopeia. The votes of the medical members of the subcommittee on scope were along the same lines, and since they formed the majority of this subcommittee, its decisions would have been in fair agreement. This I believe, would have been of advantage, at least, it would have reflected the trend of modern medicine. The Confederation of State Medical Boards has endorsed a list of some 160 titles of drugs and preparations as covering all that is really indispensable in therapeutics. A somewhat greater variety may possibly be desirable; but bold is he who would affirm that a list six times as long is of more good than harm to the public. The patient is apt to profit if the physician uses rather few drugs, but uses them more judiciously.

Whilst I believe, therefore, that it was a mistake to assign the decision of admissions and deletions to the pharmaceutical members of the revision committee, I am glad to acknowledge that they have discharged this duty remarkably well, all things considered. The deletion of 160 drugs, more or less obsolete,



is an achievement, which stands unparalleled, I believe, in the history of pharmacopeial revision. It is certainly a long step in the right direction—as long a step as could reasonably be expected—perhaps as long a step as it is wise to take at one time.

Taking the list as it stands it throws a very interesting light upon what the executive committee considers the standard of therapeutic usefulness which should entitle a drug to admission. The collective or composite judgment of the individual members appears to be based on the following premises:

(1) A drug which is very rarely used need not be admitted.

(2) When all, or practically all, the respectable clinical and scientific evidence shows that a drug is inactive, it should not be admitted, unless the popular use of the drug is so extensive as to raise a “reasonable doubt” as to the finality of the evidence.

(3) Therefore drugs which are in very extensive use are presumed to be therapeutically useful, unless very strong evidence to the contrary is adduced.

(4) Duplication of equivalent or nearly equivalent drugs, or preparations is to be discouraged, unless they are already extensively used.

(5) Ready-made mixtures of all kinds should be discouraged, the admission of new mixtures should be opposed and old mixtures should only be retained if they are long established, or if there is a large demand for them. In the latter case, the therapeutic usefulness is not scrutinized very closely.

(6) Imitations of such proprietary mixtures as owe their popularity largely to advertising, are to be strongly discouraged.

The tendency of these principles is undoubtedly correct, but I believe that they attach rather too much importance to “extent of use.” This is doubtless an important consideration, for it creates a presumption that the drug is useful. On the other hand, there is perceptible a fairly strong tendency to let this presumption override all other considerations, practically all other evidence; a tendency to regard extensive use as an absolute and incontrovertible proof of therapeutic usefulness, rather than merely as strong presumptive evidence in that direction. This is a mistake, for it must not be forgotten that a thousand errors do not make a truth.

With these preliminary explanations in mind, we can pass over the details of the deletions quite briefly—the admissions I shall not touch upon further at this time.

One of the most interesting and important features is the tendency to drop ready-made mixtures: Eighteen of the proposed deletions belong to this class. The imitations of advertised nostrums especially have become unpopular, mainly because in addition to the objection common to all mixtures, there is the feeling that the pharmacopeia is not the place for this sort of exploitation. Quite a large number of mixtures are still retained, but even the Compound Cathartic Pill was not quite proof against assault. In the subcommittee, the vote stood 4 to 4, the first vote of the executive was 6 to 7, but Chairman Remington advised its retention, and the second vote stands 12 to 2. In extenuation one may say, at least, that it is not therapeutically inert, but whether a "simple" catharsis really requires a mixture of eight distinct drugs is to me somewhat doubtful. The "vegetable" pill, however, went down.

The official equivalent of "Fellows' Syrup" also had a checkered career. The subcommittee voted against it, 5 to 3, also the executive committee, 10 to 4; but the pharmaceutical members seem to have had a sober second thought, its reconsideration was moved, Chairman Remington said that it should be retained, and the second vote stands 10 to 4 for admission. This syrup contains seven "active" ingredients—any physician who knows what these are, deserves something—I do not know just what.

The official equivalents of "Antiphlogistine" and of "Antikamnia" and of "Listerine" did not fare as well. The subcommittee was against them, the executive committee was lukewarm, and with Chairman Remington's advice against them, they appear to be doomed.

The mixtures which were dropped will undoubtedly go into the National Formulary. Those who love them can still obtain them, but they will no longer have the authority of the Pharmacopeia as patterns for scientific prescribing.

Of botanical drugs which are practically never used by physicians, a fair number have been dropped. Calamus, Calendula, Cassia fistula, Chimaphila, Chirata, Cusso, Cypripedium, Figs, Geranium, Burdock, Mastic, Quercus, Tamarind, Zea, etc.



Others equally obsolete have not yet met their fate: Althea, Eupatorium, Rhus glabra, Sabal, Salvia, Gossypii cortex, Hamamelis folia, Mezereum, are amongst those which might well be spared, but which were retained by the executive committee.

The Pharmacopeia will still seriously define and describe orange peel, lemon peel and lemon juice, nutmegs and a few other kitchen necessities. A child may know what fresh lemon peel is; but not so the pharmacist. The pharmacist must turn to his Pharmacopeia and with due gravity he must read the following: "Limonis Cortex—Lemon Peel—The recently separated outer rind of the ripe fruit of *Citrus limonum*—Outer surface lemon-yellow, odor highly fragrant, taste pungently aromatic." Presumably, if he does not thus inform himself, he might get lemon peel confused with arsenic.

Amongst the fluid extracts, there has been a goodly slaughter: 20% of all the deletions belong to this class; they are decidedly falling in favor. Evidently we are getting away from the superstition that there is some magical potency in the formula: 1 c.c.=1 gm. No one will regret their demise, except the monopolistic wholesale manufacturers. Solid extracts have also declined in popularity. Medicated wines have been deservedly dropped, with the single exception of the old antimony wine. Of volatile oils, the omissions are far too few. Eugenol and Saffrol are retained, why, I do not know. They are not prescribed as medicines; nor do they enter in any pharmacopeial preparation. Therefore they are not of "pharmaceutic necessity," in the sense in which the phrase was to be interpreted.

Having followed me so far, you may have perceived that I am not entirely satisfied with the report; and doubtless you all share in this feeling and so doubtless does everyone who has had anything to do with its preparation, and everyone who reads it—all will find something to criticize—and always would, no matter how or by whom the report had been prepared. But if we look at the matter fairly, we should ask ourselves: Have the decisions been carefully considered, and, are the changes, on the whole in the right direction? When you recall the tedious and laborious way which the report has taken, you must be convinced that the conclusions were drawn deliberately, not hastily. I may safely say that practically every possible phase of the sub-

ject has been considered, in great detail, and I doubt whether anything material could have been gained by further arguments.

As to the second question, whether the direction of the changes have been wise, whether the principles which finally governed the changes are the right ones to be applied to the scope of a pharmacopeia—here some of us will part company. For my own part I reaffirm my belief that these principles, and the changes based upon them, are in the right direction, that they will tend to make the treatment of sick people more discriminating, more thoughtful, more exact, in a word, more scientific. I would gladly have seen these principles carried somewhat further toward their logical conclusion; but on the whole, I confess myself satisfied with the progress that has been made, and look with hope toward the future.

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### **Typhoid Vaccine as a Prophylactic in Typhoid Fever.**

By P. A. JACOBS, M. D., Cleveland, formerly Assistant in the Department for Therapeutic Inoculation St. Mary's Hospital, London, Eng.

Inoculations with typhoid vaccine as a prophylactic is at present considered to be a practical measure in the handling of typhoid fever epidemics; and when combined with the proper supervision of the water and milk supply, it is the most rapid means of controlling the spread of typhoid fever.

Its adoption by the various military services, abroad as well as in this country, with its increasing popularity in the protection of hospital attaches, combined with its harmlessness and protective value, emphasize the usefulness of this measure in combating epidemics of this disease.

In the United States alone there are annually 400,000 cases of typhoid fever with approximately 40,000 deaths. In times of war it is the greatest enemy with which the military services are confronted, as may be seen from the following statistics by Major F. F. Russell<sup>1</sup>. In the Spanish-American War, in an army of 107,973, there were 20,738 cases of typhoid fever and 1,580 deaths, or approximately one case in every five soldiers. Deaths from this cause constituted 86% of the total mortality of the war. In the Boer War, the British had 31,000 cases of typhoid fever with 5,877 deaths



from this cause. In the Franco-Prussian War there were 73,396 cases and 8,739 deaths among the Germans alone and 60% of the total mortality of the war was due to typhoid fever. During the Civil War the Northern army had about 80,000 cases of typhoid fever.

To Sir A. E. Wright belongs the credit of having placed prophylactic inoculations against typhoid fever on a rational basis by his many inoculations in the British army. Leishman, whose statistics cover a period of three years from the beginning of 1905 to June, 1908, reports on the value of this procedure in the British army, as follows: Among 12,083 soldiers, 5,473 were inoculated against typhoid fever; of these 21 contracted the disease and two died. In 6,610, practically under the same conditions, who were not inoculated, there were 187 cases and 26 deaths. The typhoid incidence among those inoculated was 3.8 cases per 1,000, while in those not inoculated it was 28.3 per 1,000.

During the Herero Campaign in Southwest Africa, from 1904 to 1907, the Germans were greatly handicapped by the spread of typhoid fever among them. The matter was placed before Prof. Koch and he advised antityphoid vaccination. It being voluntary, only 7,287 soldiers out of an army of 16,500 were vaccinated. The result was that the typhoid rate was greatly reduced.

In March, 1909, prophylactic inoculation against typhoid fever was introduced in the United States army under the supervision of Major F. F. Russell; and before the year ended they had administered 5,106 doses in 1,987 persons. During 1910, up to December 1, 1910, 39,000 inoculations were given to 14,286 persons and no untoward results were reported from the entire series. He also reports that among 14,000 persons vaccinated, there have been reported up to January 1, 1911, six cases of typhoid and no deaths; while among the remainder of the army during the same period of time there occurred 418 cases and 32 deaths.

A striking illustration of the efficiency of preventative inoculations in typhoid fever was illustrated in the United States army during the middle of 1910 and reported by George B. Foster, Jr.<sup>2</sup> On June 14, 1910, 92 members of Company A, First Battallion of Engineers, received the first inoculation, 10 days prior to leaving Washington for the Gettysburg ma-

neuers. On July 2, 52 received the second inoculation and on July 15, 51 received the third inoculation. The remainder of the command, 26 men, for various reasons, were not inoculated; of these two gave a history of having had typhoid and were therefore considered immune. This left 24 out of 118 men who were not immune to this disease. On August 11, 1910, five days after they returned from Gettysburg, two of the uninoculated developed typhoid fever. Between August 20 and 23, four secondary cases developed, also among the uninoculated; while no cases developed among those who were inoculated.

In civil life there are many occasions when preventative inoculations may be employed to advantage, e. g., in hospitals where typhoid fever is received, to prevent those coming in contact with the patient from being infected; physicians and nurses having typhoid fever cases in private practice; in asylums and public institutions; in mining and railway camps; before leaving for the country; and during epidemics of this disease.

Spooner<sup>3</sup> has introduced preventive inoculations among the nurses and hospital employes of the Massachusetts General Hospital after a careful investigation into the prevalence of typhoid fever among them. He found that for ten years previous to 1909 from two to six nurses developed typhoid fever annually. In 1909 the nurses were vaccinated. The result was that not a single case of typhoid developed among them that year. The frequency with which nurses contract this disease was brought out by Joslin and Ovelander,<sup>4</sup> who found that during the years 1902 to 1906, 26 nurses contracted it while working in six hospitals. They concluded that the hospital nurse in Massachusetts is about eight times as liable to contract the disease as the ordinary citizen. As a result of this investigation, combined with the results at the Massachusetts General Hospital, nine other hospitals in Boston have taken up this means of immunization against typhoid fever.

Typhoid vaccine has not only reduced the number of cases and mortality of typhoid fever, but it has cured the "typhoid carrier" who, since his discovery, has been recognized as a menace to public health. Many outbreaks have been reported during the past few years in which the source of infection was directly traceable to the typhoid bacillus carrier.



The first case in which the cure was brought about by the administration of typhoid vaccine was reported by Irwin and Houston.\* The carrier was a young woman 26 years old, a domestic. She had had typhoid seven years previously; since her illness she had not been well; she frequently suffered from headaches and gastric disturbances and became tired easily. During the seven years she had been employed in three different families, in one of which four persons contracted the disease and one person in each of the other two families. She was admitted to the hospital for observation. Typhoid bacilli were found in the urine in enormous numbers and her blood agglutinated typhoid bacilli in 1-10 and 1-20 dilutions, and partial agglutination occurred in 1-50. For five weeks she was treated with tonics, urinary antiseptics and rest with no improvement in her condition. An autogenous vaccine was then prepared from the bacilli isolated from the urine; after the third inoculation the bacilli had disappeared from the urine. She received in all six injections. She gained weight; her health improved and her blood now agglutinated typhoid bacilli in 1-200 dilution. In a later article Houston\* reported three additional cases with good results. Recently Willard J. Stone of Toledo, Ohio, reported a case which was successfully treated with vaccines. In his case the bacilli disappeared from the urine after six inoculations.

The reaction as a result of the inoculations, which are given subcutaneously, is both local and general. The local reaction is subject to very little variation and is not uncomfortable. The site of inoculation after a few hours becomes red, slightly tender and somewhat swollen; occasionally the lymphatic glands in the neighborhood become enlarged and slightly tender on the day following; but in the majority of individuals the local reaction is slight and all signs of it disappear in 24 to 48 hours.

The general reaction as a rule is very slight and exhibits itself in the form of headache, malaise and a slight rise of temperature. In severe reactions, which make up about 5% of the cases, the temperature may reach as high as 103 or 104°. The general reaction, regardless of how severe it may be, subsides within 24 to 48 hours and leaves no ill effects aside from the loss of a few pounds in weight.

The following changes occur in the serum: Agglutinins, bacteriolysins and opsonins are increased. The agglutinins begin to appear on the third to the eighth day after the first inoculation and increase rapidly, the Widal reaction being positive in dilutions as high as 1-5,000 and occasionally 1-10,000 to 1-20,000 and only rarely below 1-500 or 600. They are still present in increased quantity years after the inoculations. In one of my cases, inoculated three years ago, the serum on September 6, 1911, agglutinated typhoid bacilli in dilutions of 1-250. Therefore one who has received prophylactic inoculations of typhoid vaccine exhibits the same protective substances in the blood serum as those that have suffered from the disease; and it may be said that they are present in greater quantities. Just how long immunity resulting from protective inoculations lasts, is still uncertain. It is claimed, however, that it lasts at least three years.

#### CONCLUSIONS.

1. Vaccination against typhoid fever is harmless and simple, and whenever it has been used it has reduced not only the number of cases but the mortality as well.

2. It has long since passed the experimental stage. Since 1904, 60,000 men have been vaccinated against typhoid in India. Over 7,000 in Southwest Africa and over 14,000 in the United States. In no case has any harm followed its use. The time has come when this means of prevention against typhoid fever should be extended, not only in the military service, but among the civil population as well.

#### REFERENCES.

1. Russell: Bost. Med. and Surg. Jour., 1911, Vol. CLXIV, p. 1.
2. Foster: Jour. A. M. A., 1910, Vol. LV, p. 1808.
3. Spooner: Am. Jour. of Pub. Hyg., Vol. XIX, No. IV, p. 109.
4. Joslin and Overlander: Bost. Med. and Surg. Jour., 1907, Vol. CLVII, p. 427.
5. Irwin and Houston: Lancet, 1909, Vol. I, p. 311.
6. Houston: Brit. Med. Jour., 1909, Vol. II, p. 1056.

#### A Few Cases of Thoracic Surgery.

By F. E. BUNTS, M. D., -Cleveland.

Every rational aid that can be called into play in assisting us in arriving at a correct diagnosis in obscure cases is to be eagerly welcomed, and it is because of the decided assistance

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*Read before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, November 3, 1911.*



rendered by the x-ray in a few cases of thoracic surgery occurring in my practice during the past year that I have ventured to report them in brief tonight. The plates of most of these are in the possession of Dr. G. F. Thomas who will demonstrate them later.

*Case I.* A gentleman who had been suffering from a severe attack of pneumonia, associated with a streptococcic infection and involvement in succession of every joint in his body, gave evidence upon percussion and auscultation of a solidified right lung that refused to clear up. At the suggestion of the attending physician, Dr. J. A. Stephens, a needle was introduced and a small syringefull of pus withdrawn. A portion of one rib immediately bordering the puncture was removed in the expectation of finding a large amount of pus. A small amount of turbid serum escaped through the opening but nothing else. A finger introduced through the opening could be passed between the solidified lung and parietal pleura in all directions. A small drain was inserted and the wound eventually closed without suppuration.

Naturally no marked improvement followed the operation. An x-ray examination subsequently showed a shadow, interpreted as pus, a short distance below the former opening and the excision of a rib at this point gave vent to a collection of pus from between the lower and middle lobes. No doubt the aspirating needle had originally entered this walled off interlobar empyema and though it failed to show at the first operation, its gradual enlargement and its localization by the x-ray made its subsequent detection very easy. The patient eventually recovered.

*Case II.* A gentleman who had suffered from pleurisy, but in whom the persistence of fever and thoracic dulness led to the belief that an empyema might also be present, was aspirated, but only a small amount of clear fluid was obtained. No improvement following, an x-ray examination was made at the suggestion of his attending physician, Dr. J. P. Sawyer, and a well defined shadow discovered. An exploratory resection of a rib over this region revealed an interlobar empyema which was opened and drained and the patient was fully restored to health.

*Case III.* A young lad of 10 years had pneumonia last December. It lasted 10 days, when the fever left him, subsequently returning for three weeks, then dropping to subnormal. In March he had a chill and high fever which continued till he

entered Charity Hospital on June 21, 1911, under the care of Dr. J. P. Sawyer. The child seemed to be in a somewhat septic condition but no evidence of empyema was found. An x-ray examination showed a circumscribed shadow, probably pus and apparently near the posterior wall. However a stereoscopic x-ray examination showed this small shadow distinctly nearer the front than the back and a needle was inserted exactly at the spot shown by the negative. Pus was withdrawn and an immediate resection of the rib followed, with the expectation of opening into a circumscribed empyema. However, no adhesions were found. The lung immediately collapsed and retracted to the upper part of the thorax, no fluid of any kind was found in the cavity. The heart could be plainly seen beating violently in the pericardium. By reaching up and catching the lower border of the lung the finger could be slipped between both lower lobes; no adhesions were anywhere present and owing to the collapse of the lung the location of the puncture with the aspirating needle could not be discovered until after repeated grasping of the lower lobe and squeezing it, a drop of pus appeared on its surface. Steadying the lung as best we could by holding on to it with a piece of gauze I was able to push a pair of hemostatic forceps into it at the point where the pus appeared, this enabled me to divulse the opening and about one ounce of thick pus was evacuated. An attempt was made to insert a tube into the opening but the movement of the lung prevented it so that simply a piece of gauze, long enough to go to the bottom of the cavity and allow some free play of the lung, was used. An attempt was made to stitch the lung to the thoracic wall but, this failing, it was realized that a general infection of the thoracic cavity would take place and a rubber tube was inserted for future drainage.

The boy left the hospital in four weeks with the drainage tube still in place but with a normal temperature, a very slight discharge and greatly improved in health.

*Case IV.* A young man was expectorating large quantities of pus daily. His parents felt convinced that he had a pulmonary abscess and in conjunction with Dr. J. H. Lowman I made punctures in various places in hopes that the abscess might be located. Nothing was accomplished, however, and a subsequent x-ray examination, by the absence of large shadows and the presence of numerous scattered ones, seemed to confirm Dr. Lowman's



diagnosis of bronchiectasis. It is now two years since these examinations and he is in practically the same condition.

*Case V.* A woman with almost the same history as Case IV and firmly convinced that she had a lung abscess, was seen by me in consultation with Dr. I. C. Miner. My diagnosis was bronchiectasis. The patient, however, was not satisfied and she was sent to Charity Hospital, where a radiograph was taken by Dr. G. F. Thomas who coincided with me in the diagnosis after a careful examination of the plate and a comparison of it with other plates taken in similar conditions. At the request of the patient several punctures in various parts of the lung were made but no pus could be aspirated. She then left the hospital and Dr. Miner informs me that she has greatly improved under general treatment.

*Case VI.* This patient was convalescing from an operation for suppurative appendicitis, when she was taken with what seemed to be a pleuropneumonia. The lung did not clear up satisfactorily and a persistent fever suggested an empyema. In consultation with the attending physician and surgeon, Drs. E. H. Stone and W. H. Weir, the right posterior thoracic cavity was aspirated showing a clear fluid. Some relief followed but the temperature remained elevated and the patient appeared septic. Several subsequent aspirations were made at varying intervals always in the posterior region and always showing a clear fluid. She was taken to Lakeside Hospital where she gradually became worse and symptoms more pronouncedly septic, making it practically certain that a collection of pus existed somewhere in addition to the serous exudate.

A stereoscopic radiograph was taken by Dr. Hill and though there was evidently fluid in the posterior chest, a denser shadow nearer the median line and presumably in front made us aspirate in front and inward from the axillary line. Thick pus was withdrawn and an immediate resection of the rib at this point revealed a circumscribed abscess approximately the size of a small orange filled with a foul smelling thick pus.

The recital of these few cases is not for the purpose of drawing any inferences as to treatment but rather to demonstrate that in the radiograph properly interpreted we have another very useful aid in the diagnosis of obscure cases, and that in the localization of a true abscess of the lung, the stereoscopic image revealed absolutely the correct position of the abscess.

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## EDITORIAL.

### Interpretation of Bacteriological Tests for Water Pollution.

Knowledge of the details concerned in the acquisition of a pure water supply has been widely extended in the last few years and the development of a series of simple tests for contaminations has put these tests within the reach of several groups of workers. The result has been that two opinions as to the interpretation of these tests have come to the front, and it is clear that any divergence of thought is of great importance to the ultimate consumer. While there is general agreement that no accurate judgment can be reached with regard to a particular problem unless that problem has actually been studied on the ground, and that certain tests, chemical and bacteriological, are the final means of decision,



there is less agreement as to the extent to which these tests should be carried out, and as to their interpretation. The divergence is greatest in regard to the bacteriological tests, based on the fact that the colon group has the power to ferment milk sugar solutions with the formation of gas, and that the colon organism is a normal inhabitant of the intestine. When *B. coli* is present beyond certain standards it is presumed that the water supply is subject to pollution by sewage of the domestic type, and that as a result all that is necessary for the development of typhoid or other intestinal disease in the consumer is the presence of the organisms of these diseases in the digestive tract from which the colon came. The organisms which are able to make gas in other sugars but not in milk sugar are fortunately also unable to cause disease, so that in the absence of a positive test we feel that that particular sample is safe from a bacteriological standpoint. So far there is again agreement, but so far only. As might be expected the division lies between the bacteriologist whose preliminary training is that of an engineer or a chemist, and the bacteriologist whose preliminary training is that of a graduate of medicine. Without any intention of criticism of the former, it is natural that the point which is prominent to them is that the results to be obtained from the various purification plants with which they are concerned should be as good as possible and the tendency therefore is to narrow the test so as to exclude the greatest number of organisms as indicators of continued pollution. The medical bacteriologist on the other hand considers the matter from perhaps a broader point of view, and tends to transfer the burden to the other side, and to consider that all organisms which *may* be indicators of pollution should be considered together.

These two opinions may be readily noted on reading papers on the subject written from the point of view of the engineer and chemist, and from the point of view of the medical man. A paper by Copeland and Hoover of Columbus, in the last number of the *Journal of Infectious Diseases* shows the former very clearly. The authors, in common with many others of their profession, consider that for the determination of pollution we must have the *absolute* colon bacillus, answering to a large and complicated variety of tests, and in the absence of such complete tests pollution is not determined. Now while there is no doubt that *B. coli* is the most frequent denizen of the human intestine,

and is for that reason of more value than the others, there is also no doubt that there are several organisms found normally in the digestive tract which differ from the colon bacillus only in some of these very special tests, but not in the main lactose fermentation test. Recent detailed correspondence on this subject with a number of the most prominent water bacteriologists of the country may be summarized by the statement that in the event of a fermentation of lactose after the addition of water, 90% at least of the organisms involved will be of intestinal origin, though not 90% may be *typical* colon bacilli. Pursuit of the typical involves complicated laboratory procedures, and the general opinion of the medical bacteriologist in regard to these water examinations is that the so-called *presumptive* test as above noted, when positive, indicates a polluted water. The authors of the paper quoted state that they have isolated two organisms not of this group, and fermenting lactose, from the raw water, but as this is perhaps the first report of such organisms it should be regarded in a conservative manner until further work has been done on the cultures. It should of course be a truism that for any water supply the normal should be established and studied, both as to chemical and bacteriological content, but it seems more reasonable to exclude all waters which contain intestinal bacteria than those waters only which have typical *B. coli*. It is better to allow an occasional innocent water to suffer temporarily than to permit one guilty one to carry the germs of typhoid and other intestinal diseases to an unprotected public.

Along these lines there is another interesting psychological question, relating to the degree of responsibility of a water department for the quality of the water supplied, in the absence of any purification plant. There is a prevalent idea that any reflection on the quality of such a water is a reflection on the department, whereas this is of course in no way the case. A water may be unsatisfactory either from commercial and economic reasons or from sanitary reasons, but unless the business section of the community urge an improvement for the first reasons or the board of health urge action on the city for the last reason, the department is helpless, except as it may choose to suggest to the city that certain improvements could profitably be made. No matter how important the question may be, in the absence of appropriations for improving it the water department can do no



more than administer its affairs as best possible, and it should accordingly welcome assistance towards the improvement of the supply from which it must distribute water to the consumers.

R. G. P.

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### **State Universities and the Development of Medical Teaching.**

During very recent years there have occurred changes of considerable importance in the teaching of medicine in the medical departments of the state universities of a number of western states. The final effects of such changes as have been made are not yet fully evident but the general trend of affairs throughout the western states is such as to lead to the belief that the state universities will exert a very tremendous influence upon the future development of medical teaching. The universities of states like Wisconsin, Michigan and Minnesota have for years maintained excellent medical schools. The desire to use available resources to the best advantage is becoming general and a number of institutions give evidence not only of success but also of foresight and of self-sacrifice in the realization of this desire. In several states the disappearance of commercial medical colleges, due in part, at least, to the growth of the state schools, has been of advantage to the latter. By the building of a new hospital and clinical laboratories in Rosedale, Kansas, a suburb of Kansas City, Missouri, the University of Kansas is making available to itself an important clinical field. At Indianapolis the control of hospital material has finally passed to Indiana University. In the latter institution and in the Universities of Oregon, of Washington, of Nebraska and of several of the southwestern states there are being brought about important changes in faculty personnel and methods and in teaching ideals.

The events enumerated indicate that the march is forward and toward progress. In the West, as elsewhere, educational institutions have been hampered by a lack of money. But throughout the West the state schools are constantly receiving more willing support and increased appropriations. In every western state the number of citizens who have had some training at the state university is steadily growing. Year by year more and more families owe allegiance to the state school. It is the increasingly intimate and mutually beneficial relationship existing between the state university and the body politic, a relationship

which has reached its highest and most astonishing development in states like Wisconsin and Kansas, that is fraught with so much that augurs well for the future of medical teaching. The growing political progress and freedom of the West, the looking upon the liberal maintenance of the state university as one of the eager privileges of citizenship, the feeling of proprietorship in and responsibility for the school upon the part of the majority of the citizens, these are qualities which, reflected in the state universities themselves, must make of the latter institutions of potentially unlimited development. In this development medical teaching must share, provided the sense of proportion is not destroyed by that old university bugaboo, the race for large enrollments. Surely the intelligence capable of building a state university of the type of this our dream will see the necessity of correlating the medical enrollment with the clinical material available for teaching purposes. If it ever becomes possible to express accurately and graphically, by means of figures, symbols or curves, the average intelligence of the citizens of a state it will be found that the mean mental equipment of the citizenship of the more progressive states—we do not necessarily use the term progressive in the sense of the political campaign spellbinder—runs considerably above the general average. A citizenship with more than average intelligence will demand of its doctors more than average training. What is more important, it will see to it that its prospective physicians are supplied with the resources necessary to obtain the proper training. In the development of medical teaching, in the fitting of medical training to the higher demands of an educated constituency we can hope for much from the state universities of the future.

O. T. S.

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### The Wassermann Test.

The wonderful advance in our understanding of syphilis during the past few years is one of the most striking features of modern medicine. To German minds and methods we are indebted for the scientific achievement. Not the least in this contributive group is the Wassermann reaction. Like many other valuable discoveries this serum test is liable to be misused, until time, the great leveler, enables us to better appreciate its limitations as well as its capabilities. The modern mind and the mod-



ern medical man ill brook this modifying period. In nearly all countries and in nearly every hamlet the Wassermann serum reaction is made regardless of the operator's fitness or the laboratory equipment. In fact, without special training in a serum laboratory, and without the facilities of the most approved laboratory of this kind, the Wassermann test is, at present, an unsafe and variable guide in the diagnosis of syphilis. Nor is the personal equation a negligible quantity. The interpretation of the reaction requires experience and ability in this special field. These requirements are not prohibitive excepting to the homely Jack-of-all-trades-and-master-of-none species. To the clinician who relies wholly on the tribunal of such, the results are misleading and therefore harmful to the patient. Those who would resort to this test in determining the presence or absence of syphilitic contamination should realize that there are few men sufficiently well trained in serology to undertake the test with a reasonably sure prospect of obtaining accurate results, and the equipment as commonly furnished, precludes the possibility of the great accuracy necessary in making the test.

Strange, almost paradoxical as it may seem to some, the most accurate Wassermann tests are not made in America, nor in Germany, but in Denmark. Under Prof. Madsen the work done at the Royal Serum Institute at Copenhagen is of a very high order, and the extreme care taken in making the test insures reports from this laboratory as accurate as seems possible at this time.

Also, the number of diseases and conditions which divert the complement fixation test is increasing—scarlet fever, yaws, leprosy, malaria, neoplasms, pellagra, cachexias, lead colic and the imbibition of a moderate amount of alcohol. According to Weil and Braun phthisis, pneumonia and croupous pneumonia, while typhoid fever, diabetes mellitus, Hodgkin's disease, beriberi, Vincent's angina, and icterus, have by various observers given a positive reaction without any known association with syphilis.

It can readily be understood from the foregoing that the test, as at present made throughout the country, should not be taken too seriously nor its findings be too literally acted upon. It seems therefore wise that a note of warning be sounded lest our en-

thusiasm in following the new carry us away from the path, narrow though it may be, which leads to fields with which we are most familiar.

W. T. C.

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### Department of Therapeutics.

Conducted by J. B. McGEE, M. D.

**Exophthalmic Goiter:** In the *Archives of Internal Medicine* for September David Marine and C. H. Lenhart consider the treatment of exophthalmic goiter, stating that a correct estimation of the value of any plan of treatment is easy or difficult in proportion to the closeness with which the disease follows a type. If the disease is acute and typical, the therapeutic value of any measure is readily determined; but if on the contrary the disease is chronic and subject to many spontaneous remissions and exacerbations it is extremely difficult to reach a just estimate of the value of any plan of treatment. The therapeutic measures at present employed may be divided into two groups, as follows: (1) Those directed toward the correction of metabolic disturbances, and in particular the nervous exhaustion. (2) Those directed toward reducing or concentrating the thyroid secretion. As to the measures to be considered under the first head, rest, both mental and physical, stands first in importance among all the beneficial measures now at our command, and as nearly absolute mental rest as possible should be striven for. Baths have an important place in the treatment both for their sedative and tonic effects. As to exercise there are three forms: (1) Active (voluntary) movements, (2) passive movements, and (3) electricity. In all severe cases the muscular weakness precludes attempts at active exercise, but massage should be instituted in connection with the hot baths. Concerning climate great difference of opinion exists. All we know may be summed up by saying that since these patients withstand heat badly, one should avoid the hot, humid climates, and seek a cool, dry, pure atmosphere, while in patients with cardiac weakness the altitude may be harmful. Regarding diet, the food should be plain, well cooked, wholesome and taken at regular intervals while stimulants should be avoided. The value of suggestion in this disease is universally recognized. The physical condition of these patients is very unstable and the physician should encourage and cheer the patients. Hypnotic suggestion should be condemned. Drugs have little actual value, and their beneficial influence is determined largely by the mental impression on the patient, and by the skill and intelligence with which their use is adopted to each particular case. It should be pointed out that the limits of safety in the use of drugs are very narrow in this disease, and drugs should therefore be used in small doses and under careful control. Their use is largely symptomatic and may be grouped as follows: (1) The cardiovascular group of which digitalis, its derivatives and allies, are most important. The heart and vessels need neither stimulation nor depression. They need regulation and this regulatory control can be regained but slowly and under any condition digitalis is the most commonly used, and its use should be confined to such conditions as acute dilatation, valvular lesions or actual myocardial disease. It should not be used for the tachycardia, as rest in bed, and the ice bag are safer and better. (2) For nervousness, restlessness and insomnia, opiates, bromids and coal-tar products are most frequently employed. An occasional dose of a dram of sodium bromid before retiring may be useful, but these patients are peculiarly susceptible to opium and it should not be used, the same is true of the powerful hypnotics and depressants. (3) Iron, arsenic, sodium phosphate



and quinin hydrobromate have their advocates and are often of value in individual cases. (4) The use of such animal extracts as thymus, adrenal, ovary, testis, spleen, pituitary or brain tissue is purely empirical and has no known influence. With desiccated thyroid it is different. In the acute severe primary exophthalmic goiter cases this drug should not be employed unless one uses a purified iodothyreoglobulin hypodermically in doses of 1/50 gr. (0.0012 gm.) as recommended by Beebe. On the whole this is a dangerous drug, and should be used only in the purified and standardized form in cases under the closest observation. They feel certain, however, that its use in this disease will become more general when these conditions are fulfilled. (5) Iodin has much the same action in exophthalmic goiter with active thyroid hyperplasia as has iodothyreoglobulin and in addition has the advantage that the dose can be controlled, and that the reaction produced depends on the size of the dose, and the existing degree of thyroid hyperplasia. They have used iodine in 17 cases and seen none of the injurious effects commonly described. It should be given by the mouth and preferably as syrup of the iodid of iron, syrup of hydriodic acid or sodium iodid. They advise that the initial dose be small. In the second group surgical measures rank first, while the non-surgical in use to counteract or reduce the hypothetical thyroid hypersecretion are: (1) the antithyroid serum of Moebius, (2) the milk of thyroidectomized goats, (3) the thyrolytic serum of Beebe and Rogers, and (4) the Roentgen rays. The prevailing opinions as to the value of the first two of these measures is that no more improvement is noted under their use than may be ascribed to rest, hygiene and time, certainly no specific action has been demonstrated. As to the serum of Beebe and Rogers, after its use in 14 cases the authors conclude that no improvement occurs over what normally follows rest in bed. The value of the treatment by Roentgen rays is still problematical.

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**Sour Milk Treatment:** H. W. Wiley in the *Monthly Cyclopaedia* states that much has been said in the last few years respecting sour milk as a preventive and remedy for disease, and as a means of prolonging life. Most persons who have become enthusiasts in this line attribute the theories of healing to Professor Metchnikoff. It is true that Metchnikoff has written much on the subject of sour milk as a food, but a careful perusal of his work does not afford any reasonable foundation for the sentiments which have been attributed to him. The effect of sour milk upon the intestinal flora is a matter of scientific and doubtless hygienic importance, and from the extent to which the study of this interesting problem has been carried as a result of Metchnikoff's writings, the latter have certainly been productive of good. Even if sour milk should appear from the results of present investigations to prolong life, too short a time as yet has elapsed for its observation to permit of making any dogmatic statement of this kind. As a result of the sour milk theories the country is flooded with advertisements of cultures of different kinds to be used for the artificial souring of milk. These cultures are accompanied with most extravagant statements respecting the virtues of this diet, intended to deceive and mislead and too often succeeding in the purpose for which they are published. It is the duty of those interested in therapeutics to study, without bias, the data relating to all claims of this kind, but to be slow in reaching conclusions, especially in attributing virtues to certain diets which are not fully proved by proper scientific and experimental evidence. In this connection he states that by most writers today probably too much stress is laid upon the dangers of intestinal bacterial action. One might almost think from a perusal of some of the literature that the existence of bacteria in the intestines is a matter of regret. The field is of course a large

one from the therapeutic point of view and a study of the changes which take place in the bacterial flora of the intestines under different forms of diet would bring to light much valuable information. Antiseptics might be introduced into different parts of the intestinal canal by enclosure in media which would require different times for their digestion, so that the antiseptic would be set free at stated intervals during the passage of these bodies through the alimentary canal.

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**Fever:** In the October number of the *American Journal of the Medical Sciences* Frank Sherman Meara considers the treatment of febrile conditions. Fever, as the physician knows it, is almost invariably the result of bacterial action, and so cannot be differentiated from toxemia. Pyrexia and toxemia, however, show but little parallelism; indeed the worst forms of toxemia may be accompanied by no pyrexia at all, while a relatively high temperature may be seen with a minimal toxemia. Briefly, then, unless the degree of temperature is inordinately high, that is constitutes a hyperpyrexia, the treatment of fever is not an antipyretic treatment, but an antitoxemic treatment and such fall of temperature as accompanies our efforts is incidental to them and not the object at which we aimed. The value of rest, diet including ingestion of water, fresh air and hydrotherapy are of course recognized, and as to drug administration, it like the other measures is aimed not at the pyrexia but at the toxemia. Cathartics occupy an important position among the drugs as they prevent stagnation within the bowel and the consequent absorption of putrefactive products. Our great dread in the severe intoxications such as typhoid fever, pneumonia, diphtheria, scarlet fever and sepsis is a circulatory failure: he believes the vasomotor mechanism to be here at fault and so prefers drugs that act on the vasomotor centers or the vessels. His choice is at present for caffein, and thinks it should be given in sufficient dosage and so administered as to guarantee its arrival at the goal desired. He gives one of the soluble double salts that of caffein and sodium benzoate or caffein and sodium salicylate in doses of five grains every four hours. Next to caffein he uses a 10 or 20% solution of camphor in olive oil and gives at least five grains every four hours hypodermically, often alternating with the caffein thus giving a dose every two hours. Personally he has less faith in strychnin. We cannot exclude the heart in all cases, and so, if the vasomotor stimulants are not efficacious, he uses digitalis in one-half ounce doses of the infusion, and because of its slowness he uses as an initial dose one-half milligram of strophanthin intramuscularly. As to the antipyretics, these drugs are depressants and should never be used where the circulation is impaired.

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**The Hypophosphites:** In *American Medicine* for September O. L. Mulot, treating of the modern treatment of tuberculosis, refers to the fact that in 1860 Churchill published his remarkable observations on the use of the single hypophosphite salts. He definitely formulated the indications and contraindications for each, and emphasized the therapeutic value of the salts employed individually. For a long time his work was neglected, but it has recently been revived, and recalcification and phosphorization treatment is being practiced abroad with good results. No one can read Churchill's carefully recorded observations without realizing that the calcium hypophosphite is indicated in a greater number of phthisical cases than any of the others, and a study of his work is strongly to be recommended. Nor is the value of the combinations formed between phosphorus and calcium confined to tuberculous cases; he knows of no drug that he could more illy spare in the treatment of bronchial affections in general than this. In chronic winter coughs



which so often prove the forerunner of tuberculosis it is invaluable in his experience, but he always uses it singly. Never combining two phosphates or hypophosphites in the same prescription. He is firmly convinced that an intelligent and more general use of these preparations would go a long way toward the prevention of tuberculous cases. We all know at times how insidious is the beginning of tuberculosis, making it absolutely impossible to fix the time of invasion; in such cases there is a history of bad health with a little chronic bronchitis, but repeated physical and sputum examinations fail to reveal any tuberculous infection. Then little by little the condition becomes aggravated and we find ourselves in the presence of a typical tuberculosis. We all know these cases too well and meet them all too frequently and it is in just these kind of cases that the phosphocalcium compounds are of the utmost value.

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**Opiates in Children:** In the September number of the *Indianapolis Medical Journal* S. E. Earp treats of the usefulness of opiates and their harmfulness in children. If the preparations of opium are good remedial agents for the adult, the same should be true in the case of the child. It is not the preparation itself that is of so much importance, but the failure to recognize the indications for its use, and the proper dose. Many of us were taught in the lecture room that opium should be avoided in the treatment of children, and in fact book statements were made that opium was contraindicated in infancy and old age. Nothing can be more fallacious and it is time to recognize that there are certain diseases of childhood in which no remedial agent is superior to opium. If there are untoward results because it is improperly administered the ignorance of the prescriber is often largely responsible. There was a time when fear prevented the use of this agent, and a sin of omission was the cause of detrimental results. That opium is contraindicated in childhood is one of the things we have had to unlearn. He quotes Lust who says that opiates are not contraindicated in infants as has been supposed but, on the contrary, are of great value in spasmodic conditions. We should avoid preparations of opium which contain all the alkaloids and other principles of the drug and should confine ourselves to morphin given hypodermically or by mouth. The tolerance of infants for this drug is equal to or greater than that of adults if its dosage is based not upon age but upon weight. Morphin is a simple stable product, the dosage of which can be given with precision. It should be one-half milligram for every kilogram of weight in each 24 hours, well diluted; or one-half as much by hypodermic injection. There is no fear of accumulation and the dose may be increased without fear.

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**Veronal Poisoning:** S. Pollitzer in the *Medical Record* for September 30 states that since the introduction of veronal as an hypnotic about eight years ago a number of cases of poisoning with the drug have been reported. The medical dose of veronal is from one-half to one gram, but the range of toleration is rather a wide one; single doses up to eight or ten grams or more have been taken without harmful effects. Umber reported the case of a healthy woman who recovered after a single dose of 20 grains. Among the symptoms recorded in cases of toxic effects from medicinal doses of the drug, vertigo, nausea and vomiting, stupor or mental confusion, muscular weakness, thirst and a macular and vesicular eruption on the skin resembling an antipyrin rash are mentioned. The symptoms varied considerably, however, in different cases, and in general one may divide all these cases into three groups: those in which a single dose was taken by accident or with suicidal intent; those in which patients have exhibited an idiosyncrasy to even

small doses; and those in which the continuous use of the drug in medicinal doses over a long time has resulted in the sudden development of toxic symptoms. He reported in detail one case of the cumulative type that had come under his observation. He emphasizes the importance of care in the administration of this valuable hypnotic. It should never be given undissolved and should not be administered daily over long periods of time lest it exercise harmful cumulative effects.

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**Heart Failure:** In the *Therapeutic Gazette* for September, Mackenzie (*The Lancet*) gives as the first and most important indication, that an individual affected by a heart lesion which diminishes his work force, must live within the limits of his powers. This can only be done by the periods of rest being sufficient to restore the exhaustion of the work force. In this way alone will heart failure be avoided and a reasonable prospect of longevity be attained. Treatment need not be given in the presence of any abnormal conditions unless there is distinct evidence of heart exhaustion. Where there is such evidence, then the treatment in the first place must consider the possibility of diminishing the amount of daily effort. While in all successful systems of treatment rest is always prescribed, its good results are not always recognized because at the same time some special agent is employed, such as a drug, a bath or an exercise, and the good results are attributed to the special agent. It is for this reason that the therapy of heart affections is loaded by such an array of therapeutic measures, the vast majority of which have little or no effect on the heart. Mackenzie does not accept the present day belief in the effect of strychnin, as he has sought in vain for the slightest evidence of the effect of medicinal doses of strychnin upon the heart and has not found in the literature one single reliable instance of its effect in medicinal doses. He asserts further that we might not care so much for these erroneous beliefs were it not that they blind the profession to the great want of suitable agents in treating real and serious affections of the heart. There are many conditions in which rest alone fails to benefit the heart, as when the heart is invaded by a toxin, or rendered irritable from some lesion in the heart itself, or when the ventricle in heart block contracts so seldom as to endanger life. For these and many other conditions we are absolutely without any means of meeting the impending and actual danger, and yet we are kept in ignorance of this fact because writers pour forth a stream of remedies for any and every kind of heart trouble.

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## Academy of Medicine of Cleveland.

### ACADEMY MEETING.

The eighty-fifth regular meeting of the Academy was held at the Cleveland Medical Library, Friday, October 20, 1911, the President W. B. Laffer in the chair.

E. I. Lefevre presented a boy showing a complete new growth of hair following the alopecia due to x-ray treatment for favus. At a previous meeting the patient had been shown with complete loss of hair over the affected area. The new hair was slightly darker in color than the old and with the exception one or two very small areas completely covered the scalp.

The program was as follows:

Symposium on Contract Medical Practice.

1. The Ethics of Contract Medical Practice and its Economic Advantage to the Community, R. E. Skeel. (Appearing in full on page 881.)
2. The Economic Effect of Contract Medical Practice on the Medical Profession, J. E. Tuckerman. (Appearing in full on page 886.)



3. The Condition and Control of Contract Medical Practice in Other Cities of the Country, C. A. Hamann. (Appearing in full on page 894.)

4. The Condition and Control of Contract Medical Practice in Foreign Countries, W. B. Chamberlin. (Appearing in full on page 902.)

W. G. Stern, in opening the discussion, spoke as follows: Several speakers have mentioned the fact that hospitals enter into this contract practice. I wish to ask whether the hospitals as organized in this State, as corporations "not for profit," have the right to contract with insurance companies, shops, firms or individuals for the treatment of disease and the performance of operations, in short for the practice of medicine and surgery.

Some of the contracts entered into between mining corporations in Michigan and their physicians are not as fair as would appear at first sight. I have personal knowledge of one corporation employing about 2000 men which collects \$1.00 per man monthly for medical care and pays its medical officer only a \$3000 yearly salary. It rarely has more than one or two patients in a hospital (conducted by a religious order) at a time; for this hospital care the company pays only \$1.00 per day, per patient. As the company pays no sick or accident benefits the difference goes into its treasury and it has been a long standing complaint of the employees that this excess of the money deducted from their pay has never been refunded. I am also told that as the old surgeon dies or resigns and a new man comes in the yearly stipend is reduced, although the company is constantly growing larger and employing more men; five years ago when this company employed only 500 men and collected \$2.00 per man monthly and there was no hospital in that community, it paid its surgeon a certain Dr. Huffman a salary of \$7,500 per year.

N. C. Yarian: Ever since I have been practicing I have done more or less of what might be termed contract practice. I want to say, however, that I have never engaged in lodge practice or medical practice under contract. It has been strictly surgical work. On the whole, year after year, I think I may say that my own compensation has been fairly satisfactory. Of course, there have been some contracts that we have entered into which have not proved satisfactory. Some years the work has been large and the remuneration has not been in proportion.

With respect to first-aid fees, I have always protested against them. I know quite a number of instances in which, because of this protest, we have been able to get the company to make a special concession. If the profession would only insist they could do much to bring the prices up. Dr. W. P. Chamberlain and myself have succeeded in doing that in a number of cases, and by taking a firm stand we have raised the fee considerably. I have always held that lodge practice was reprehensible: we ought to take a decided stand against it.

With respect to surgical practice in which corporations are concerned, a good many contracts have been satisfactory, as has been said by Dr. R. E. Skeel and the other speakers. It is necessary for a corporation to have men upon whom they can depend in an emergency, and it seems to me that as a rule these corporations can be brought to pay a fair, adequate sum.

C. E. Ward: I don't think we all live in glass houses, as has been said, nor on the same street. I think we have got to have a little more "racket" here tonight. The practice of medicine is not only a profession, it is a business; and we have got to look at it from a business point of view. It is the business in which we are engaged. It is the business in which we are supposed to earn money enough to support our families. We are all opposed to the advertising doctor because he is supposed to rob the public and not give the people good service. The contracting doctor, robs us, and he does not give the people good service. If the hospitals today were closed against the contract doctor it would be a physical impossibility for him to carry on his business. His cases are

often left to the care of some doctor or orderly. If there is too much work at his office, it is attended to by an office girl. There are about twenty men in Cleveland that are doing the contract work and they are the chief offenders. They are the men that we should get after. Within the last five years I have seen at least 75% of my casualty work taken from me. It didn't go to the doctors. The doctors went to the company and contracted to do the work at prices that were ridiculously low. I remember many a night I was called out of my bed to do work for men who had been insured by the Aetna Life Insurance Company for which I was never paid. After a time I was sent for by this same company. They offered me a contract to do their work; as an example, for a fractured skull they would pay me \$15.00. In talking with their representative I said to him, "Suppose a man has a compound comminuted fracture of the femur; he really requires an amputation; he refuses operation and he is taken to his home on the West Side, five or six miles from my office. I am in charge of the case and I am supposed to take care of him. Now, who is going to pay me for all the visits I will be obliged to make on the man in giving him proper care?" "Why," he said, "the man will cheerfully and willingly pay you when he is able." That is the attitude of the insurance company.

A short time ago I received a letter from the Penn Steel Company of Pennsylvania, in which they said they would probably injure a number of men in erecting a bridge for the Erie Railroad. They asked me to quote them a price that would prove attractive. I am not the only man in Cleveland, I am sure, who received a copy of that letter.

I belong to lodges that employ physicians, and I have helped elect some of them. I have also talked with a number of these doctors on this subject, and they all agree that this condition should not exist. In fact, every man that I have talked with says I am right. There is no question about our being right in this matter. The question is, how long are we going to let this thing go on? Men engaged in lodge work all admit it is wrong. Don't think it is easy to be elected a lodge doctor. In fact, I don't think there is a man here tonight who could go out and be elected lodge physician to the Eagles. There is a great deal of competition to get those positions. It seems all right to the boys who have them, still, at the same time, it is wrong. They are taking care of a great many families that rightfully belong to us.

R. J. Lawlor: In the hospitals in which I worked I found that a great deal of casualty surgery was taken care of by the house doctor, because the doctors in certain neighborhoods didn't like to do it. I had some idea I would like to be a surgeon: accordingly I located out on Woodland Avenue near the Pennsylvania tracks, where there is a great deal of casualty surgery. Things went along swimmingly for me; I got casualty surgery and I took care of it for some time until the insurance companies came in and gradually took all of the work out there. They came to me with a contract. They didn't offer me \$15.00 for treating a fractured skull, they offered me 10% of the premium. Mr. Wilson, the representative of one of these companies, made a personal visit to my office and wanted me to take care of this work. I told him I didn't see how I could come out even on the proposition. He explained to me that I didn't understand it, that all I had to do was to take it and that I would come out very nicely. I took it, but I wouldn't sign a contract, as I was always opposed to contracts. It took me only a few days to make up my mind that I was "flimflammed." So I called on him and said, "Mr. Wilson, you have 'put one over' on me. The surgeons in our neighborhood say they would not take this work for such a price. I have called up three men in the neighborhood"—and I mentioned the three names (I am not going to mention them tonight, because I know some of them are present, and I don't want them embarrassed). "The first man you mentioned," Mr. Wilson said, "I am sorry for, because



he is going to give up our insurance, but as to the other men, I will show you their written applications." Thereupon he reached into his drawer and showed me their written applications. I said, "I don't care to do the work, but I will take it now to punish the men who told me they would not touch it." However, after six weeks of service; after I had had a fractured thigh, a tearing of the tendons of the shoulder joint, two deaths, a severing of the carotid—where the man bled to death, a few little pleasantries like mangled fingers, etc., I decided I didn't want to punish these fellows any further. As I walked along that neighborhood day after day, with a fairly decent suit of clothes on, and watched laborers at their work, clad in working clothes, I felt sure they thought, "There goes that doctor! He walks along in the middle of the day with a clean collar on. He has an easy time of it." And yet, there was not a man there who worked half as hard as I did. I had spent eight or ten years preparing myself, I was giving up all of my time for study, for rest, for recreation, and I was not getting paid a fair proportion to the man who was digging along the railroad tracks.

I have thought a good deal about this question. It seems to me that we have been made the sport of everybody. It seems to me that it is time for us to rise up and do something. The municipality, the hospital, the insurance company, the corporation, everybody, takes a crack at the doctor. I have been thinking also for a long time, how we are going to put a stop to all this. My friend, Oakley and I have talked it over. I feel that it is about time to organize a protective society. He says the time is ripe for us to join the American Federation of Labor, and then when a man does work for a lower price than is commensurate and just, he will be considered a "scab" and so labeled by his fellows.

U. M. Bachman related an experience he had with a contract surgeon. One of his patients, who had been injured, requested that Dr. Bachman, his private physician, be called, but as the latter was not in his office at the time, the employing company sent the man to the ward of a hospital where Dr. Bachman could not attend him. The patient was therefore removed to his own home where the company's contract surgeon visited him and tried to persuade him to dismiss Dr. Bachman, on the plea that unless he did so the company would not pay the bills. When this surgeon was asked for an explanation of his conduct, he maintained that he was entirely justified in so doing, and he apologized only when he later learned that both the employing company and the insurance company had agreed that Dr. Bachman might attend the case.

Frederick E. Bruce, agent for The Travelers Insurance Company: I am known to a number present here this evening, and I have been deeply interested in a discussion on the subject of contract medical and surgical attendance in its several branches, but particularly in connection with insurance, as I represent The Travelers Insurance Company, which is the largest writer of employer's liability and personal accident insurance in the United States.

One of your prominent surgeons, in talking with me this afternoon, asked me "Why are insurance companies in favor of contract medical and surgical attendance?" This question was a great surprise to me, for this subject of medical attendance has caused more annoyance than any other one item or factor, to the companies writing liability insurance.

You have criticised, this evening, the practices of one or two companies in connection with the medical service rendered by doctors, but I believe the cases referred to are the exception rather than the rule. I do wish, however, to state emphatically that The Travelers Insurance Company (which I represent) absolutely refuses to issue employer's liability policies which embody a contract to furnish full medical aid. We are asked to do this daily, but constantly decline it. In making this statement, I want it to be understood that I am speaking now of the contract between the company and the assured. There are, no doubt, many cases

where agents, even of The Travelers Insurance Company, may have made a contract between doctor and assured, which he (the agent) personally guaranteed or agreed to handle. But under no circumstances will The Travelers Insurance Company, itself, make a contract with its policy-holders to furnish full aid.

In our personal accident department,—every doctor present has, no doubt, attended many of our policy-holders who have been injured, and is, no doubt, aware of the liberal fees paid in such cases.

In our life department we pay \$3.00 and \$5.00 for examination; also an extra fee for microscopical work.

The business of a liability insurance company is to furnish employer's liability insurance and not to furnish medical or surgical aid; this duty properly falls upon the employer, and that is our constant contention.

The contracts we sell employers under the form of employer's liability insurance provide indemnity to the employer for loss sustained by reason of the liability that may be imposed by law on him for such injuries (including death) to his employes or other persons by reason of his business operations.

The obligation of the employer furnishing medical attendance is more a moral than a legal obligation; and the insurance company has never attempted to underwrite any man's moral liability to anyone.

My company feels that the employer is in a better position to make arrangements for medical attendance as he desires, than the insurance company. The employer, however, seems desirous at all times of having this obligation assumed by the company—presumably to relieve him of annoyance. We believe, however, that it only adds to his annoyance; that he could provide it himself and have it handled with much more satisfaction, leaving the insuring company to assume the claims arising wherein liability can be imposed by law.

We do, however, write contracts carrying and embodying what is called first medical aid; and where such policies are issued an injured employe has a right to call any physician he chooses, and then it is the usual practice for the doctor to present his bill to the employer, and, in turn, the employer presents it to the insurance company.

In some few cases we have had difficulties regarding what we thought were overcharges; and we might let you into a secret—namely, that one of the reasons why we desire to eliminate first aid from our contracts and absolutely decline full medical aid, is because of the charges that are imposed upon the insurance company.

You are evidently all opposed to contract medical and surgical attendance, and there was a report read this evening by W. B. Chamberlin on the contract situation in Germany. And along that line permit me to ask if you are not aware that the State of Ohio has passed what is known as the Green Bill, which is now law and goes into effect January 1, 1912, and is commonly known as the Workmen's Compensation Act. This act provides for weekly payments to the employe in case of injury, regardless of the fault of the injured or employer. In case of permanent total disability, it provides that the employe receive weekly compensation for the balance of his life. In minor injuries, the employe receives compensation up to six years. And a minimum of \$1500 and a maximum amount of \$3400 is paid for death where there are dependents. The act also provides that the employer shall furnish medical and surgical attendance up to a cost not greater than \$200.

No doubt the State fund providing this compensation will want to make contracts with many doctors for this service, and here is the chance for the doctors who want to make such contracts, and also the chance for the doctors who do not to oppose this practice.

It is believed by many that this Bill is unconstitutional. Certainly,



the cost to the employer to furnish the compensation provided in this Bill and the medical attendance also provided, will, in all probability, eventually become prohibitive. So I say to you, if you want to fight contract medical attendance, be on your guard when this Bill becomes effective; and I would advise a careful study of it.

If there is any question I can answer in defense of the insurance company's position, I will be only too glad to do so.

W. E. Sampliner: I have done work for insurance companies. They have certain contracts here in the city where they furnish first aid, but they have always been very fair in payment of these bills, and I have never known the Travelers Company to dispute a bill that was within reason. The Fidelity and Casualty Company of New York City had a contract with a certain company in which a relative of mine holds a position. He was able in a number of cases to send the injured men to my office. The bills were rendered for the regular fee that I would charge an individual. The company after a few months claimed that the fees for the services were exorbitant.

I know of a man who was being paid a dollar for each dressing in his office, but the insurance company said, "We know of a man (in the Schofield Building) who has been recommended to us, who is willing to make contracts for dressings at ten cents a piece and furnish the bandages that would be needed. Sure enough when the contract expired they refused to renew it. I know for a certainty that the second man is making dressings for that fee.

In regard to hospitals making contracts for first aid service, I can answer, that one of the largest hospitals in the city has a contract with a large concern here, for first aid at the rate of \$2.00 for each case.

Now, in regard to all of us living in glass houses, as was said by a previous speaker. When I graduated from medical college, and in reading medical journals, particularly the *Journal of the A. M. A.*, I always thought contract work was not ethical. That was what I was given to understand in my school days and shortly afterwards. I have always fought shy of that sort of thing. I don't believe that contract work or lodge practice has come to stay. I don't think that we have to do that work. It can be done only with the connivance of the physician, and the lodge can't hire a doctor unless the doctor is willing to be hired. The men who do work for the Eagles and other organizations are doing work practically for nothing. Of course they have the excuse that if they don't do it some one else will, but the point is that the Academy can stop this if it will, for the reason that there will not be any other reputable men, or men who can get up in court and legally testify that they belong to medical societies, etc., to be hired, provided the Academy rules against it.

In regard to the Krankenkassen in Vienna and other cities, I do not think that the fees paid here are any better, when you consider the price of ten cents paid for a dressing, or the price paid by the Metropolitan Life Insurance Company of Ohio for a visit to the home. Such a visit has to be made at a certain hour, during the supper or on Sunday morning or whenever the man happens to be at home, and the fee paid for this examination is 25 cents. I don't think that is any better price than the price paid in Vienna. Besides, translating the Austrian system of money into American money is hardly a fair equivalent, as the amount paid there would still be greater than the 25 cents paid here.

W. J. Benner: I live in a part of the city distant from the factories, and as a result am free from contract work. I was taught ethics year by year, but as far as ethics in medicine are concerned, I have been looking and watching for them and I must say that I have been unable to find very much ethics in medicine thus far.

In regard to insurance, I would like to ask Mr. Bruce whether they do or do not employ physicians in the Travelers Insurance Company. I

am not here to fight Mr. Wilson's battles, but must say I have been treated very fairly by him. I have been doing some work for the Aetna Insurance Company for which I have been paid the same as my regular practice. I would like to ask Dr. Lawlor and Dr. Ward about how they were paid when they were working for this same company. I would like to go back to the big men. We were taught in medical college as we sat there in our seats and listened to our professors about things we were going to meet when we started out in our profession. How about these older men we were associated with in the hospital, that we all know were doing surgery for railroads? How about these physicians we know that are doing contract work? Why don't they get up and tell us something about it? I consider the trouble with the medical profession is that we are not honest with ourselves. I am very fortunate to live in a part of the city where my colleagues are above the average.

Sometime ago I was riding on the Erie road and I sat down with the surgeon of the same. Why does he not get up and tell us how it is? He does not deny that he is satisfied. We little fellows are doing most of the talking, why don't these big fellows talk? Why don't they "turn these things down" if it is wrong? Why don't they set an example for us young men?

Another thing in regard to the Aetna Insurance Company, I had access, through a brother who is an adjuster for the company, to look over bills that were sent into his office by physicians. He has asked me at times "What do you think of the bill rendered in this case?" I want to tell you that the doctor—while the insurance company may be lame—simply because they were a company of that kind, charged outrageously, and many a case was held up simply because the doctor overcharged just as much as some of them undercharge. It seems to me that a body of men like the Cleveland Academy of Medicine ought to get together, be honest and we will get good work in return.

R. J. Lawlor: I don't see any of these big surgeons getting up, so I am going to answer the question as to how I was treated by the Aetna. The premium on their employer's liability policy was \$600.00. With wonderful generosity they allowed me \$60.00 a year and all the work I have described before. Dr. Benner's brother is, or was, connected with the Aetna, and they may have made some exceptions for Dr. Benner's special benefit. Before I had given up my work I went to a surgeon, about the only available man in our neighborhood, and in talking with him on this subject said: "I am furnishing surgical aid, bandages, gauze, antiseptic materials, etc., and I am getting 10%, which is not sufficient. I will turn it over to you if you will give me your word that you will not accept it at the price they are offering me." I met him a few weeks after that and asked him if he was doing the work for the Aetna Company. He said he was and he added: "Of course, I am getting a whole lot more than you got." He said he was getting 15%. If 10% would not pay me for my bandages, gauze, antiseptic materials, etc., I couldn't see how 15% was going to pay him for his work and those things too. One day after that I met the agent of the Aetna and I said, "How is it that I, who carry a life and accident policy in your company, and who am a holder of other policies, should not be treated as fairly as the man who is now doing your work?" He said, "What do you mean?" "Why, Dr. So and So receives 15% where I only received 10%," I replied. He used the "short and ugly word," and said, "The Aetna does not pay more than 10% of its premium."

James Stotter: Discussions like that of last week and tonight with their accompanying discharge of lightning and thunder, greatly clarify the air.

Having no contract practice, I wish to observe just this one recurring phenomenon that the big offender goes free while the little fellow is penalized. By what measure of equal justice is the beginner, living in the



outskirts of the city, and taking care of a number of poor families for a small annual fee, to be more severely criticised than the man of established reputation who looks after the injured of a big corporation and draws a liberal compensation for it?

The European profession looks upon the Krankenkassen, the sick-benefit societies of Germany, as the greatest evil. Yet it must be admitted that these very societies do care for their sick members, paying, it is true, an insignificant fee, but paying it; whereas we, with our many free dispensaries, free clinics and free hospitals pauperize otherwise well-intentioned people, transforming many of them into impostors or worse.

In the Austrian capital no life insurance society would dare offer a physician the princely sum of 25 cents for examining a proposed risk, as is done here by a concern that pays its president an annual salary in excess of that of the President of the United States, and its chief medical examiner anywhere from \$25,000 to \$50,000. Besides, the term "contract" service is at times misleading. Our district physicians are doing contract work—and good work it is—but its compensation is hardly what it should be.

After all, the deserving practitioner—barring the unavoidable exceptions—is pretty apt to fix his charge according to his needs and circumstances, his environment, and the class of his clientele. But while the man of small means pays "all the traffic will bear," as our railroad friends have it, the man of large means, no matter what he pays, does not pay enough.

A. P. Scully: I think that some of the older offenders should answer the arguments advanced against them. To do justice to myself and other doctors connected more or less with society business in this city, I wish to say that I made out a detailed analysis of the only society work which I had done and I apparently proved to the satisfaction of Dr. Gentsch, one of the committee of the Academy to investigate this question, that this society work averaged me from 30 to 40% over and above my regular charges. I received certainly more remuneration than some of the doctors who spoke tonight would lead you to believe; one man stated that we received practically nothing. I have tried to be not only professional and ethical, but to look after the business end as well and I do not do any more cheap work than I can help.

Now, do the patients that we wait upon get satisfaction? The position is an elective one and if we did not give satisfaction would we be returned to office? I can prove that some of this business, when it is properly paid for and regulated, will give better financial returns than the railroad practice which many of the surgeons are taking care of. If you are going to particularize, do not single out your societies; single out your railroads as well. The American Steel & Wire Company, the Cleveland Street Railway, for which I happened to do a great deal of work at one time, and some at present, remunerate their surgeons properly. It is true that there could be better contracts made, but we should not discriminate, all should be treated alike.

L. K. Baker: At the present time business is organized, the government is organized, the state is organized, the municipality is organized, trusts and corporations are organized, and they are all organized for business. We are organized, but we are not organized for business. We want to "get in out of the rain." The thing for us to do is to organize for business, and I do not know any better way to do it than to form a union.

A. W. Leuke: The Cleveland Academy is a union, but I do not think it is a good thing to have the union controlled by contract people. A great many members of our Council are the greatest sinners. I think if the general profession would get hold of these committees and run the organization, it would avoid some of this contract work.

W. E. Hart of Elyria: I have been connected with the Lake Shore for twelve years, and I received no more than \$1,000 during those twelve years. I resigned and the chief surgeon was in town but a few hours and he had no trouble in getting another man to do the work I did.

G. E. Follansbee: I am generally known among the profession as a contract surgeon. I have been waiting and hoping that some one who has been doing contract work more years than I have would take up the cudgel in defense of our work. I am not willing to let this discussion go by without some remarks on it and also on the remarks that have been made tonight.

It has rather been assumed that the principal duties, in fact the only duties of contract surgeons, were to dress cripples. That is not so, that is one of the duties, an important duty, but in some respects it is quite a minor duty. The contract surgeon has many other things to think about. He is called upon to advise the administrative officers of the concerns that employ him as to the best way of taking care of the employes as to sanitary conditions and as to the health of the employes. He must advise them not only in case of accident, but as to relief in case of illness, as to pensions, as to equipment at their hospitals, and facilities for attendance on the injured. This class of work is not such as can be taken care of outside of a contract position. It is work of such a nature that it cannot be charged for properly when it is given, and it must be done by contract. It must be done by a man whose business it is to know those things, else it has no value.

I work for the American Steel & Wire Company. While we have a good class of doctors out our way, it is utterly impracticable for the works to depend upon Tom, Dick, or Harry, or whoever can be secured in an emergency. So, they must depend upon some one man or two men to take care of that work and do it properly for them. So much for the industrial concerns and the railroads.

I have not as much to say for lodge work. However, I have done lodge work. When I first started out I wanted to get business. I needed it. What money I had I borrowed, and borrowed it of poor people, too. There came a lodge of Foresters in our neighborhood. I joined and was their physician. I kept strict account of the work I did for the Foresters. I got a dollar per year per member. I always liked that work. I like business with men and corporations better than treating women and children. I found that the work I did for the Foresters paid just about the same as my other practice would have paid me. In those days the charges were a dollar a visit and 50 cents for a regular office call.

I have also been in the industrial insurance business. While I was doing it, it was the best paying work I had. I did not slight that work. The best evidence that I did not slight it is that when a Toledo company got into a bad hole with some Cleveland people, the Prudential people sent them around to me to straighten things out, and I did so. I made more money per hour that I worked at that business than I did at my regular practice.

There is another feature of contract work that has not been touched upon tonight, for which I can see hardly any excuse, and which, it seems to me, the Academy might take hold of for the advantage of its members, and that is contracts made by hospitals. I cannot see why any hospital should enter into competition with the doctors by entering into contracts with corporations to care for their accidents, whether a merely nominal charge is made for dressings and services or whether a full charge is made. The doctor actually doing the work, usually one of the resident physicians of the hospital, gets as a rule no part of this fee. Certainly the hospital sends the bill and pockets the fee and not the doctor who does the work. Even so prosperous a concern as the Standard Oil Company of



New Jersey cares for its accidents in this way. I am not interested in what they pay, but I know they do it.

All the speakers have made the principal complaint that the contract fellows have not been charging enough for their work. This attitude has been taken a great many times when physicians have made charges for caring for corporation accidents. Very often enormous charges have been made. I regret to say that many bills have been sent to me for approval before being paid and I could not recommend payment of them, the charges were so excessive. This attitude has I think been most pronounced in street railroad cases. Once a physician said to me: "Make them pay for it; they are a corporation; they have the money; make them pay for it." Corporations may be right or they may be wrong in employing contract surgeons, but it is not honest to charge them more than your work is worth, and there would not be, perhaps, so much of this contract work if a majority of the profession would be more reasonable in charges for what they do. I believe in getting paid for this work, but if you are not a specialist, if you are not able to get such fees in your regular work, you should not expect corporations to pay them. Charge them reasonable fees and there will not be much trouble. Most corporations who have contract surgeons do not object to their men getting outside surgeons to attend them in case of injury. They do reserve the right of paying that doctor or not as they see fit. If a man is injured and he wants his own doctor to attend him, that is a private contract between him and the doctor, and I do not see how the doctor can expect the company to pay him when the man employs him instead of the company; I do not think it ought to be expected. Corporations are perfectly willing to have their men employ their own physicians, but they reserve the right to send their own doctor to see them and examine them for their own information.

R. E. Skeel: I think there is not a great deal which one can say in conclusion, as we have not heard much either one way or the other applicable to this subject. In the way of closing the discussion, however, I will say that I was extremely sorry to hear discussed the business aspects of medicine in connection with my own paper, the title of which was "The Ethics of Contract Medical Practice and its Economic Advantages to the Community." I wish it distinctly understood that all that was said in the paper with regard to remuneration had reference to its indirect effect upon the services which people receive who were under the care of physicians insufficiently remunerated, and thus not able to spend the time and money necessary to properly care for their patients. But I do not believe that the Academy of Medicine is called upon to take care of any doctor's business affairs for him.

I do not mind this talk of unionism and of joining the American Federation of Labor, because I take it as a joke. If I thought it was serious it would make me sick and so sick that I would leave this Academy and never enter it again. If an enlightened scientific profession like that of medicine feels it necessary to hitch its scientific association to a union or labor organization for purposes of self-preservation I am ready to step out and leave the field to the Christian Scientists and others of that ilk who make no pretense beyond that of commercial aims. If it is necessary to have such organizations tell me what I shall charge and not allow me to make individual contracts with individual patients as I see fit (according to the responsibility involved and the ability of the patient to pay) I am ready to quit the profession and get into some other line of work which makes no pretense to altruistic motives. I am fairly husky yet and think I might make a living at some other occupation such as digging ditches for example; but I will not practice medicine on the same commercial basis as I should the latter occupation. There is a vast difference between practicing for the love of it and securing adequate or

even large fees, so that one may do his work well and without worry over his financial future on the one hand; and being a "fee chaser," practicing for the dollar and doing as little as possible for that dollar, on the other. One contributes to constantly better work and the other to progressively poorer work. One is the professional ideal and the other the commercial; and the laity is rapidly coming to see the difference between the two.

In order not to have my position misunderstood I wish to read one or two things from the body of the paper:

At the outset—"I confess that I enter, upon the task which your committee has assigned me without any great amount of enthusiasm, first, because my actual contact with, and first-hand knowledge of contract practice is very limited since I have never been engaged in any of its branches, and second, because I feel that there are abuses in the profession itself which stand in greater need of correction."

Next—in my conclusion. "1. Many forms of contract practice are not only ethical but economically *necessary*. Such forms include whole time service in sanitariums, State hospitals, municipal and State health departments, life insurance companies, etc. With part time service as actual employes of corporations, manufacturing industries, etc., in which the employer pays for the service an adequate remuneration.

"2. That some forms are *undesirable*, such as contracts with lodges and other organizations which are in themselves good, but which pay their physician so small a salary that the patients who ultimately pay the bill, do not receive adequate service. This should be righted if possible, but it is a very small mote in the eye of the profession which contains a number of fair sized beams which should be extracted before its vision is quite accurate.

"3. That some contracts are *vicious* both ethically and economically and they include all those in which the employer, who is a promoter, starts an organization with the direct end in view of collecting small fees from its members promising adequate medical service in return, and who then hires the cheapest man he can obtain to trifle with the members lives under his medical license."

Last—"There seems to be no immediate solution to a problem whose basic difficulty lies in the fact that four times as many physicians exist as are really necessary and all must somehow eat and drink whether they can be merry or not."

This latter proposition contains the clue to what can be done if anything. In our discussion tonight the question has been repeatedly asked "What are you going to do about it?" and the criticism will be made that nothing has been done, which is perfectly true. If any reform is to take place it will not occur through resolutions but must be brought about through action by the individuals themselves.

If you can go back to the basic fact that medical schools and medical teachers coax boys into the profession under the presumption that its practice is an easy way to make a dollar, and can block the sending of large numbers of men to medical schools who have that idea in mind, you may finally obtain a permanent change, but you can resolve and resolve again and nothing will be accomplished.

J. E. Tuckerman: Dr. Skeel has summed up the whole matter pretty clearly. The question all comes down to the individual as to whether the members of an enlightened profession are going to deal squarely with one another. If they will not, you cannot do much about it. If they will, you can accomplish a great deal. These experience meetings are a good thing, for the simple reason that medical work is of such a nature that one physician does not know anything about what the other man is doing, whether he is receiving anything or not. There is another angle to it, which is distressing, and that is, the pressure is the heaviest



on the young practitioner. The man who feels it the worst is the one who has not an established practice. After we have been in practice ten years, we have reached a point where it does not concern us very much; we butter our bread, and it does not worry us. The young man who has not been in practice very long needs the money. If he complains, people say, "What is the matter with him? Can't he make his salt?" So, it is rather up to the older members of the profession to set a good example; to explain these things; and bring to the attention of the young members the fees that constitute a fair remuneration.

In regard to the question raised as to whether a hospital has a right to contract for medical practice, I do not know that that question has been raised in this State. I fancy, however, if that question were put to a legal test, it would be found that hospitals do not have the right to contract to furnish medical service. A decision in New York State says that a medical company cannot contract to give medical service, i. e. a company cannot practice medicine. I suppose that a similar decision would be held here, although I do not know.

I hope that no remarks that I have made in this paper may be taken as personal. We have tried to avoid personalities in these discussions, and to take our bearings and see where "we are at." It is a most unfortunate fact that medical men from altruistic motives, will accept inadequate fees from cities and institutions well able to pay for their services what they are worth. This is professional suicide. I was very much interested in Dr. Follansbee's remarks, because he is one of the men whom I believe to be absolutely square in his dealings. I think most highly of Dr. Follansbee. The fact, however, stands out in his remarks that the medical examinations did not prove satisfactory to the insurance company, for otherwise it would not have been necessary for this company to come to Dr. Follansbee to get him to straighten out their difficulties.

This one thing which stands out in all the discussion, not a word has been said to contradict it. All this contract work tends constantly to be let at a lower and lower rate, and unless the medical men make up their minds to ask for and maintain proper remuneration for this work, it is going on just exactly as it has, in a haphazard, underpaid manner.

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#### MEDICO-PHARMACEUTICAL SECTION.

A meeting of this Section was held at the Cleveland Medical Library, Friday, October 27, L. C. Hopp in the chair.

The program was as follows:

1. The Proposed Deletions from the Pharmacopeia, T. Sollman. (Appearing in full on page 920.)

2. The Pharmacopeia from the Therapeutic Standpoint, M. J. Lichty. (To appear in full in the Journal.)

M. J. Tielke, N. Rosewater, J. Feil, L. C. Hopp, C. B. Tanner, J. B. McGee, J. J. Thomas, J. G. Spenser, and others discussed the papers.

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#### OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION.

The fifty-fourth regular meeting of this section was held at the Cleveland Medical Library, Friday, October 27, 1911, S. H. Large in the chair.

The program was as follows:

1. Presentation of Clinical Eye Cases, W. E. Bruner.

Several cases of dislocation of the lens in varying degrees were demonstrated. In one very unusual case the lens was partly attached below and when the patient looked straight forward the lens would fall back into the vitreous, to all practical purposes an aphakic eye. If on

the contrary, she put her head down and manipulated it a little, the lens would fall into place and she would be able to read at a close point.

2. Report of a Case of Sequestrum of the Temporal Bone, J. M. Ingersoll.

This sequestrum occurred in a child. The specimen showed the semi-circular canals in position. An unusual feature of the case was that while most of the petrous portion of the temporal bone was destroyed, there was no facial paralysis.

J. E. Cogan, in the discussion, reported an almost similar case in which facial paralysis followed seven days afterwards, but which now had nearly entirely recovered.

3. Presentation of a Case of Syphilitic Stenosis of the Larynx with Bronchoscopic Demonstration, W. B. Chamberlin.

This case was probably one of syphilitic stenosis. The tube was passed down to the bifurcation of the trachea with little difficulty.

The clinic which was to have been held at St. Luke's Hospital was postponed until the afternoon of the day of the next meeting, November 24. The specialists of Northern Ohio interested in eye, ear, nose and throat diseases were invited to attend.

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### COUNCIL MEETINGS.

The Council of the Academy met Tuesday, October 31, 1911.

The following were elected to active membership, W. D. Sharp, J. H. Grossman, and H. O. Ruh; to non-resident membership, E. D. Schild, Canton, Ohio.

The following names were ordered published: For active membership, C. W. Wyckoff, J. T. Smith, Jr., A. J. Pearse, J. D. McAfee, B. L. Spitzig, R. A. Bruntnall, W. G. Zantony, H. A. Berkes, G. B. Fliedner, A. G. Schlink; for associate membership, V. E. Barnes; for non-resident membership, C. A. Lamont, Canton, Ohio.

The resignations of J. T. Harding and H. V. Arny were accepted.

It was voted that a communication from the Constitutional Convention Conference be laid on the table.

It was voted that Richard Dexter be asked to continue as Chairman of the Membership Committee for the remainder of the year.

In view of the fact that no Nominating Committee was elected at the October meeting, it was voted that all nominations be made from the floor at the November meeting.

It was voted that a communication from Horace Bonner, President of the Ohio State Medical Association, in regard to public meetings be referred to the Program Committee.

The Council of the Academy met Tuesday, November 14.

The Committee on Dispensary Abuse and Contract Labor made the following report on contract labor. It was voted that the Committee be thanked for their work; that the report be read at the November meeting; that printed copies be mailed to each member and that a vote be taken on it at the Academy meeting in December.

### REPORT OF THE COMMITTEE ON DISPENSARY ABUSE AND CONTRACT LABOR.

1. Lodge and Benevolent Society Sickness Insurance.

*Definition:* A contract between a medical practitioner and a benevolent society under which, for a certain sum of money, the former agrees to perform all the duties of a general practitioner toward every member of the society—including in many cases their families—for a certain period of time.

*Recommendations of Committee:* The physician should be remunerated for his service to lodge members at the same rate as would obtain



in private practice among the same class of patients. There is no more reason why the sum paid the physician for his services to lodge members should be less than that which he would obtain from persons in the same social position as those composing the lodge, than that specially low prices should be granted the lodge for the rent of offices, or for any other article or service for which the lodge as an organization may have to pay.

It is recognized by the medical profession of Cleveland that the modern lodge, or benevolent society, is an economic advantage in certain sections of the community, at least in so far as it insures persons against sickness, accident and death. To carry out such work, the lodge must be aided by the services of one or more medical practitioners, but it is wrong from the point of view, both of the lodge and of the medical profession, that this medical service should be rendered under a form of contract which leaves the individual lodge member no choice of his physician, and compels the contract physician to render professional services at an absurdly low fee. The system under which many lodges have hitherto made contracts with physicians has had the effect of introducing into the profession an element of commercialism, which, besides being undignified and demoralizing, has compelled many physicians to undertake much more work than can be properly attended to. Because of the inadequate fee for each case, the lodge physician must attend large numbers in order to obtain a sufficient income.

The deplorable conditions of medical practice in several districts in New York, and elsewhere, due to the prevalence of lodge practice, should be a warning to the medical profession in Cleveland.

The committee recommends that the lodge should maintain a medical fund out of which the lodge should pay the accounts rendered by the physicians who have furnished medical attendance to members of the lodge. There should be no official lodge doctors, whose services alone a lodge member could call upon in order to have the sick benefits of the lodge, but the choice of the doctor should be free to every member of the lodge. The fee paid the medical practitioner for such service to lodge members should be according to a minimum fee bill drawn up and adjusted from time to time by a committee of medical practitioners elected annually from the floor of the Academy.

The following amendment to the By-Laws is proposed:

"A committee of the Academy shall be appointed to draw up and control a comprehensive minimum fee bill for the medical services to members of lodges and benevolent societies.

"This committee shall consist of five members, two representing those engaged in lodge practice and two other members of the Academy. The fifth member shall be nominated by the President of the Academy and shall be chairman of the committee. The nominations for this committee shall be made when possible by the regular nominating committee under terms provided for in the Constitution of the Academy (Chap. X., Sec. 6). Otherwise the nominations may be made from the floor at any regular meeting of the Academy and voted upon at the next meeting. The fee bill thus drawn up shall be subject to approval by the Academy as provided in Chapter XV. of the By-Laws.

"All members of the Academy shall agree: (1) to charge not less than the amounts given in the fee bill; (2) to render their accounts according to the amount of work done; (3) not to enter into any form of contract under which for a stipulated sum they undertake to render medical treatment to any or all of the members of a lodge or benevolent society.

"Infringements of these regulations are to be reported in writing to the committee.

"No physician shall be eligible to membership, nor shall be continued

in membership in the Academy of Medicine of Cleveland unless he abides by the above regulations for lodge and benevolent society practice, and renders his bills for such work at or above the rates given in the fee bill.

"One year from date of adoption of the above regulations by the Academy shall be allowed before they become effective.

"Nothing in the foregoing should be considered as in any way preventing the employment by a lodge of a physician to act as adviser along medical lines and to safeguard their interests in connection with the medical attendance of lodge members. This physician shall not attend any of the lodge members as medical adviser unless under the same conditions as those laid down above."

A list of medical practitioners who are willing to render their services to lodge members according to the fee bill shall be drawn up by the committee and sent to the various lodges who request such lists.

This committee would also continue the unfinished work of the present committee.

## 2. Industrial Insurance Medical Inspection.

*Recommendations of the Committee:* The committee is convinced that this work is undignified and hurtful to the profession. Not only is the remuneration utterly inadequate, but it is the opinion of the committee that the inspection required by the medical inspector is in most cases of such a nature—mere inspection and asking a few general questions—as to render the services of a competent physician unnecessary.

The following amendment to the By-Laws is proposed:

"No one engaged in such work as defined below shall be considered as eligible to membership, nor shall be continued in membership, in the Academy of Medicine of Cleveland.

"Six months from date of adoption of this By-Law shall be allowed before enforcing this ruling."

*Definition:* The inspection at their homes of persons who have applied, or for whom application has been made, for an insurance policy (of the so-called industrial type), and for which the fee paid the medical man for each case is fifty cents (50c) or less.

If it is the case that the services of a fully qualified medical practitioner are essential for this work, the conditions under which the work is done could and should be greatly improved by the insurance companies.

Among the improvements called for are: (1) arrangements whereby the applicant for insurance should attend the office of the physician, or of the company, in order to undergo the medical inspection; (2) the raising of the minimum fee for such office inspection to one dollar (\$1.00).

## 3. Contract Accident (Casualty) Work.

*Definition:* A contract between a physician or surgeon or hospital and some business firm whereby the former agrees to treat all accidents (or sickness) that may occur within a certain time to any of the employes while engaged in the work of the business firm, either for a certain sum per case treated or for a stipulated sum paid at regular intervals irrespective of the amount of service rendered.

*Recommendations:* Although of essentially the same nature as lodge practice, there are several particulars which make it necessary to consider accident contract practice by itself. The routine nature of much of the work, the necessity for repeated visits of the patient for dressings, the fact that accidents to workers form a business risk just as breakdown of machinery does, and the recent legislation regarding employer's liability for accidents, are among the reasons for considering this form of practice separately.

The following amendment to the By-Laws is proposed:

"A permanent committee of the Academy shall be appointed to draw



up and control a minimum fee-bill for the care and treatment of accident cases. This committee shall be composed of five members, two of whom are engaged in contract work, two not so engaged and the fifth member nominated by the President of the Academy. This last member shall be chairman of the committee.

"The committee shall be elected when possible at the annual meeting, the nominations being made by the regular nominating committee for officers as provided under the Constitution of the Academy (Chap. X, Sec. 6 of the By-Laws) otherwise the nominations may be made from the floor at any regular meeting of the Academy and voted on at the next meeting. The fee bill drawn up by the committee shall be subject to the approval of the Academy as provided in Chapter XV of the By-Laws. All members of the Academy shall agree: (1) to charge not less than the amount given in the fee bill; (2) to render their accounts according to the actual amount of work done; and (3) not to enter into any form of contract under which, for a stipulated lump sum, they undertake to treat all accidents which may occur within a certain period of time to the employees of some business firm.

"No medical man shall be eligible to membership, nor shall be continued in membership, in the Academy of Medicine of Cleveland unless he abides by the above regulations for accident work, and renders his bills for such work at or above the rates given in the fee bill.

"Infringements of these regulations are to be reported in writing to the committee.

"One year from date of adoption of the above by the Academy shall be allowed before the above regulations become effective.

"These regulations do not prevent a medical practitioner from being employed by a business firm in the capacity of general consultant along hygienic or medical lines, at a certain salary, but all casualty work which is treated by the consultant should be paid for according to the amount of service rendered, and at rates not less than those given in the fee bill.

"Casualty work done by assistants to be considered as coming under the above regulations."

It is recognized by the committee that this agreement can not be kept unless certain public hospitals that have contracts with business firms for the care of accidents will agree to discontinue such contracts. It is of course right and proper that accidents should be treated in hospitals by the regular hospital staff, whenever possible, but this work should be paid for on the same basis as would obtain in private practice. The fee for this work should be charged and collected by the surgeon responsible for the case. It is therefore recommended that the Academy of Medicine through its Council represent to the responsible management (Board of Trustees, etc.) of those hospitals in which such contract work is known to exist, the unfairness to the profession caused by such arrangements, and urge them to have the contracts discontinued. This refers also to those hospitals in which the payment of the business firm takes the form of an annual subscription.

The above committee would continue the work necessary for the adequate control of contract practice and left unfinished by the present committee.

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### Book Reviews.

A Textbook of Pathology. With a Final Section on Postmortem Examinations and the Methods of Preserving and Examining Diseased Tissues. By Francis Delafield, M. D., LL. D., and T. Mitchell Prudden, M. D., LL. D. Ninth edition, with 13 full page plates and

687 illustrations in the text, in black and colors. Price, \$5.50 net. Wm. Wood & Co., New York.

In its ninth edition Delafield and Prudden's textbook maintains its position as one of the best of the single volume works of pathology. Since the previous revision there have been no developments startling enough to require any very marked change in the subject matter of the book. Recent additions to our knowledge with selected literature references down to 1910 and in a few cases even down to the present year are incorporated, so that the reader is informed, necessarily briefly, as must be the case in a one volume book devoted to so large a subject as pathology, of new facts in regard to immunity, to the transplantation of tissues and tumors and to the infectious diseases. With the exception of the slight faulty application of the colors in many of the text-figures which are printed in colors the illustrations leave little to be desired in the way of number, of execution and of care in selection. There is some lack of uniformity in the use of italics for specific names and in the choice of the final vowel in "spirochaeta." The student who confines the reading that he does in connection with his class-work in pathology to a one volume book will find Delafield and Prudden's textbook safe and useful.

O. T. S.

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A Textbook of the Practice of Medicine. By James M. Anders, M. D., Ph. D., LL. D., Professor of the Theory and Practice of Medicine and of Clinical Medicine, Medico-Chirurgical College, Philadelphia. Tenth Revised Edition. Octavo of 1328 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, \$5.50 net; half morocco, \$7.00 net.

The fact that this book has passed through ten editions besides several reprints, shows that it has received an enthusiastic reception at the hands of the medical profession. In the present edition a thorough revision of the preceding has been made and the new rewritten matter includes the following: Coleman on milk sugar in typhoid fever, Chantienesse's serum in typhoid fever, Brudzinski's sign in meningitis, tonsillectomy in acute articular rheumatism, Falk and Tedesko's test in chronic tuberculosis, artificial pneumothorax in pulmonary tuberculosis, Nastin treatment of epilepsy, appendicostomy in chronic amebic dysentery, Ehrlich's remedy in sleeping sickness, salvarsan in syphilis and malaria, Bass' method of examining feces in unciniariasis, Wassermann's reaction in syphilis, Grawitz treatment of pernicious anemia and many other important contributions. An important feature of the book is the diagnostic tables which are given to assist in differentiating various diseases. The book altogether is an excellent one volume textbook of medicine. Within such a short space it is impossible for the author to enter into the discussion of theories or disputed points. One can scarcely say that the individuality of the author stands out as prominently as in some other textbooks of medicine, and for that reason a certain interest is lacking. However the volume can be recommended as an excellent general survey of our present knowledge of medicine.

J. P.

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Joint Tuberculosis. By Leonard W. Ely, M. D., Consulting Orthopedist to the County Hospital, etc. Illustrated. Wm. Wood & Co., New York.

This is without doubt the best book written thus far on the subject. The chapter devoted to pathology is especially interesting, and in this he states that, "Where red marrow is found in bone, the bone is subject to tuberculous infection; and where it is not found, there the bone is immune, or almost immune, to a purely tuberculous infection." Classifying the synovial membranes among the structures of the lymphatic system he gives us the following very interesting hypothesis: "Let us as-



sume that the lymphocytes and certain other similar cells are, not nature's defensive organism, but the natural food of the tubercle bacillus. The bacilli, floating in the blood are thrown out into the various tissues. Where the bacilli find cells suitable for their growth, they live; where they do not find these cells, they die. Nature's protective mechanism is only the elaboration of toxins and the production of fibrous tissue. The relation of the tubercle bacillus to the lymphocyte, in other words, is the same as that of the gonococcus to the polymorphonuclear or of the malarial plasmodium to the red cells.

"An operation that causes the disappearance of red or cellular or lymphoid marrow in the ends of the bones, shuts off the food supply of the bacilli. The bacilli can find no food in yellow marrow, but, if a secondary infection be added, the resulting suppuration furnishes the supply cells peculiarly adapted to the growth of the tubercle bacilli, and tuberculosis invades the yellow marrow also."

As he states, this appears to explain almost everything as to the location of tuberculosis in the bones and joints. It is to be regretted that he does not carry this theory any further. Under the head of Laboratory Diagnosis of Tuberculin Tests he states that "A tuberculous lesion anywhere in the body can give a positive reaction, though the joint under consideration may be free from tuberculosis, while on the other hand, patients with tuberculous joints often fail to give reaction." Under treatment by injections he states, "Blindly to inject any substance into a mass of tuberculous granulations about the joint, with the thought that it will so diffuse itself through the granulations as to exert a specific curative effect upon them, appears absurd." This book is undoubtedly the best of its kind and the writer should be congratulated. G. N. M.

Cesare Lombroso: A Modern Man of Science. By Hans Kurella, M. D. Translated from the German by M. Eden Paul, M. D. Rebman Company, New York. Price: cloth \$1.50.

Lombroso, born in Verona in 1835, largely a self-taught man, took his medical degree in Vienna in 1856, after which he served in Italy as an army surgeon and a prison surgeon. In the latter position his attention was directed to the study of criminals from the anthropological, as well as the psychological, and (along with Golgi) the pathologico-anatomical standpoints. While on the teaching staff at the University of Padua he published his studies on pellagra, strongly maintaining that this disease was produced by the ingestion of corn damaged by certain parasitic growths. It is of this man and his investigations that the present book deals. It is not merely an outline of Lombroso's work, but a citation as well, of evidence from other sources which appears to fit in with Lombroso's theory of a definite criminal anthropology. A portion of a chapter on criminal psychology gives an interesting account of Lombroso's ideas on the psychical characteristics of criminals, while a brief outline of his observations on the cause and prevention of pellagra gives an insight into some of his more strictly medical work. A little aside of the author's (Dr. Kurella) brings to light the fact that he himself, 25 years ago, observed cases of pellagra in the asylums of Pennsylvania and Illinois with the characteristic skin lesions in addition to the mental disorder, but that his American colleagues ridiculed the diagnosis. Reading this book certainly gives one the idea that Lombroso was a man of great intellectual powers as a thinker, investigator, teacher, and executive. It appears to be a conservative presentation of his character, environment, and work, written by a pupil who believes firmly in the doctrines of his former teacher, and these he points out in a painstaking, convincing, entertaining manner.

C. W. S.

Dorland's American Illustrated Medical Dictionary. A new and complete dictionary of terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Veterinary Medicine, Nursing, Biology, and kindred branches; with new and elaborate tables. Sixth revised edition. Edited by W. A. Newman Dorland, M. D. Large octavo of 986 pages, with 323 illustrations, 119 in colors. Containing over 7000 more terms than the previous edition. Philadelphia and London: W. B. Saunders Company, 1911. Flexible leather, \$4.50 net; thumb indexed, \$5.00 net.

This dictionary is already so well known and the succeeding editions have at such short intervals been reviewed in these pages, that it seems only necessary to say that a new edition has appeared. Nevertheless this edition shows a number of improvements over former ones. Not only have 7000 new words been added, but the entire text has been reset and advantage has been taken of this fact to indicate the correct capitalization of the words. A great many veterinary and dental terms have been added so as to render the work more complete. The advisability of including a therapeutic table covering some 36 pages, while of undoubted usefulness, seems open to question. Owing to the importance of the individual in medical work, and the frequency with which men's names are quoted in the literature, the addition of, brief medical biographies is of decided value, especially to one doing medical journalistic work. Preference is given to the simpler forms of spelling with the elimination, so far as possible, of diphthongs and hyphens. From a long and intimate personal acquaintance with the work the reviewer feels that he can heartily recommend it.

W. H. W.

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"Currents of High Potential of High and other Frequencies." By William Benham Snow, M. D., New York. Editor of the *Journal of Advanced Therapeutics*, etc. Second edition, cloth, pp. 275. Scientific Authors' Pub. Co., New York. Price \$3.00 net.

This easily readable book is the work of an author who hopes to standardize the physiological action, effects and indications for the scientific employment of electric currents. All physicians who are interested in electrotherapeutics will find it to be of considerable practical value. The many illustrations are well executed and the glossary which is attached will prove helpful to the student.

H. H. D.

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Electricity, Its Medical and Surgical Applications, including Radiotherapy and Phototherapy. By Charles S. Potts, M. D., Professor of Neurology in the Medico-Chirurgical College of Philadelphia, with a Section on Electrophysics by H. C. Richards, Ph. D., and a Section on X-Rays by H. K. Pancoast, M. D., of the University of Pennsylvania. Octavo, 509 pages, with 356 illustrations and 6 plates. Cloth, \$4.75 net. Lea & Febiger, Publishers, Philadelphia and New York, 1911.

This book consists of several introductory chapters which present in a very readable form an outline of the physics of the electric current. Then follows a discussion of the physiological activity of electricity, and its value from a diagnostic, prognostic, and therapeutic standpoint, including in this consideration the use of various forms of electric light for diagnosis and therapeutics, the use of the Finzen rays, and an admirable account of the x-rays. As a whole the book is well written. It presents methods of procedure and the use of apparatus in a clear manner, and, as a rule, conservatively estimates the results to be expected. One misses, however, an intimate personal contact with the writer's own opinions. The work of course is largely a compilation, and the author frankly states in his preface that "a work on such a vast field cannot



be based on the experience of any individual. It must also reflect the knowledge of the great body of investigators and observers who have developed the subject to its present status." From a point of diagnosis this may be satisfactory, but when applied to therapeutics, unless most carefully scrutinized, it tends to lead to rather extravagant claims, either directly or by inference. The book contains numerous diagrams and excellent illustrations of the various apparatus employed, and these aid materially in the ease with which one reads and comprehends much of the subject matter. As a textbook or reference book it must appeal to any one interested in the subject of electricity applied to medicine.

C. W. S.

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The Practical Medicine Series. Volume V, Obstetrics. Edited by Joseph B. De Lee, A. M., M. D., Professor of Obstetrics, Northwestern University Medical School. With the collaboration of Herbert M. Stowe, M. D. Series 1911. The Year Book Publishers, Chicago, Ill.

It is with pleasure that we note the appearance each year, of this small volume, which covers so completely the literature bearing upon the subject of obstetrics. In addition to a concise and yet comprehensive summary of the year's progress in obstetrics, there are frequent notations by the author, giving his personal experience and views upon the subjects under consideration. Those interested in obstetrics will do well to review this book and will find many practical suggestions, as well as the latest addition to our knowledge of subjects still under discussion. The busy practitioner, who finds it difficult to keep up with the literature of the specialties, will find in this volume, a quick and easily obtained review of the year's work in obstetrics.

A. H. B.

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Manual of the Diseases of the Eye. For Students and General Practitioners. By Charles H. May, M. D. Seventh edition, revised, with 362 original illustrations including 22 plates, with 62 colored figures. Wm. Wood and Company, New York. Price, \$2.00 net.

This valuable and concise manual is so well known and has been so frequently reviewed in its earlier editions that it is only necessary here to state that the general text and illustrations are changed to only a slight extent, but additions of paragraphs have been made under such subjects as trachoma bodies, Lagrange's operation for glaucoma, the use of salvarsan in syphilitic ocular affections, injections of tuberculin, Krönlein's operation, etc. A new chapter has been also added on "The Ocular Manifestations of General Diseases." The popularity of this book with the students and general practitioners speaks well for its usefulness.

W. J. A.

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A Pocket Medical Dictionary. Giving the Pronunciation and Definition of the Principal Words Used in Medicine and the Collateral Sciences. By George M. Gould, A. M., M. D. Sixth edition, revised and enlarged. Price \$1.00. P. Blakiston's Son & Co., Philadelphia.

This is a very convenient little dictionary, containing 34,000 words has been brought up to date and is most suitable for nurses, students and even for the practitioner who does not desire a more extensive source of information. Its small size makes it very convenient for reference.

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What to Eat and Why. By G. Carroll Smith M. D., of Boston, Mass. Octavo of 310 pages. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, \$2.50 net.

In this book the diet for various diseases is discussed. The arrange-

ment is excellent: marginal annotations are given and from a typographical point of view one finds nothing to criticise. The author gives minute directions about the general dietetic care of patents, and in a most satisfactory way explains with much care the reasons for his recommendations.

C. L. C.

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The Practical Medicine Series. General Medicine. Edited by Frank Billings, M. S., M. D., and J. H. Salisbury, A. M., M. D. Series 1911. The Year Book Publishers, Chicago, Ill.

This little volume contains a review of the literature published on the Infectious Diseases, Diseases of the Mouth, Esophagus, Stomach Intestines, Liver and Pancreas. The papers reviewed are in the main well chosen, but a few important articles have been missed. Brill's Disease has been given several pages. No doubt the next volume will contain references to important publications which have established the identity of the disease with that of typhus fever. Unquestionably these little books fill an important place in medical literature, as they give the busy man an opportunity of getting in touch with the more important advances in medical literature.

J. P.

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The Practitioner's Visiting List for 1912. An invaluable pocket-sized book containing memoranda and data important for every physician, and ruled blanks for recording every detail of practice. The Weekly, Monthly and 30-Patient Perpetual contain 32 pages of data and 160 pages of classified blanks. The 60-Patient Perpetual consists of 256 pages of blanks alone. Each in one wallet-shaped book, bound in flexible leather, with flap and pocket, pencil with rubber, and calendar for two years. Price by mail, postpaid, to any address, \$1.25. Thumb-letter index, 25 cents extra. Descriptive circular showing the several styles sent on request. Lea & Febiger, Publishers, Philadelphia and New York.

This visiting list has space for regular and other details of practice such as addresses, cash account, obstetrical engagements, etc., also at the beginning of the book a table of doses, therapeutics reminders, notes on urinalysis, weights and measures and other useful information.

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Progressive Medicine, Vol. XIII, No. 3. Edited by Hobart Amory Hare, M. D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Lea & Febiger, Publishers, Philadelphia and New York.

The September issue of this well known quarterly review is devoted to a résumé of the most recent literature regarding diseases of the thorax and its viscera, dermatology and syphilis, obstetrics, and the nervous system. The abstracts should prove most useful to those who wish to obtain the gist of recent work upon a given subject without the labor of collecting and reading a number of isolated articles. The work of the various editors has been well done.

C. L. C.

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History of Medicine and Biographical Sketches of the Physicians of Delaware County, Ohio, 1804-1910. Silas W. Fowler, M. D. Published by the author. 1910.

The editor of this little work deserves hearty congratulations upon the results of his researches regarding the history of medicine in Delaware County. A brief history of the development of medicine precedes the biographical sketches, which really represent the medical history of the county. A large number of photographic reproductions accompany



the biographical sketches. It is to be hoped that the example set by Dr. Fowler will be followed by others in the different counties of the state so that in years to come there may be available a record of the work of the medical profession that might otherwise be lost in oblivion.

H. D.

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Litora Aliena, from the Boston Medical and Surgical Journal. Octavo 78 pp. Price 50 cents. W. M. Leonard, Publisher, Boston, Mass.

This series of letters, sent to the *Boston Medical and Surgical Journal* by one of its editors while on a European trip, has been read by the reviewer with much pleasure and has vividly recalled to his mind many of the scenes so aptly described by the author. The letters are charmingly written and as the foreword says, "perhaps a physician, traveling on foreign shores, may, from his professional habit of mind, see things there that would not present themselves to other eyes."

W. H. W.

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Education and Preventive Medicine. By Norman Edward Ditman, Ph. D., M. D. The Columbia University Press, New York. 1911. Price, 25 cents.

This essay clearly portrays the enormous economic value of preventive medicine as shown by the reduced mortality from such diseases as smallpox, diphtheria, yellow fever, etc., when adequate prophylactic measures have been carried out. The vast amount of work still to be done in ferreting out the cause of many diseases whose etiology is as yet unknown, and in educating the public to the need of preventive measures against all infectious diseases, is pointed out. An appendix outlines the scope of a school of preventive medicine. The article is written so as to be easily understood by the laity, for whom it was primarily written.

W. H. W.

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Merck's Manual of the Materia Medica. Fourth edition. Merck & Co., New York.

This handy little volume contains a large amount of valuable information concerning the materia medica. Part I, the first 82 pages, deals with the materia medica proper, the various drugs being arranged alphabetically. Part II, about 332 pages, deals with therapeutic indications: the diseases are arranged alphabetically and under each are the drugs that are used for them. A large number of prescriptions are also given. A dose table, treatment of poisoning, etc. are included in Part III.

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The Medical Record Visiting List or Physicians' Diary for 1912. New revised edition. Wm. Wood & Co., New York.

This convenient visiting list is arranged for 60 patients a week and contains, in addition, special pages for other memoranda such as consultations, obstetrical engagements, etc., and in the first 31 pages a large amount of condensed information such as a list of remedies with their maximum doses in both apothecaries' and decimal systems, treatment of poisoning and other emergencies, etc. Its size allows its being easily carried in the physician's pocket.

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#### ACKNOWLEDGMENTS.

Surgical Applied Anatomy. By Sir Frederick Teves, Bart. Sixth edition, revised by Arthur Keith, M. D., LL. D. Aber., F. R. C. S. Eng. Illustrated with 137 figures, including 58 in color. Lea & Febiger. Philadelphia and New York. 1911.

Diseases of Infants and Children. By Henry Dwight Chapin, A. M., M. D., and Godfrey Roger Pisek, M. D. Second edition, revised, with 181 illustrations and 11 colored plates. Price \$4.00, net. Wm. Wood & Co., New York.

The Bacillus of Long Life. A Manual of the Preparation and Souring of Milk for Dietary Purposes, Together with an Historical Account of the Use of Fermented Milks, from the Earliest Times to the Present Day, and Their Wonderful Effect in the Prolonging of Human Existence. By Loudon M. Douglass, F. R. S. E. With 62 illustrations. G. P. Putnam's Sons, New York and London.

Collected Papers by the Staff of St. Mary's Hospital (Mayo Clinic) 1910. Illustrated. W. B. Saunders Co., Philadelphia and London. Cloth, \$5.50.

The Practical Medicine Series. Volume VII, Pediatrics. Edited by Isaac A. Abt., M. D., with the collaboration of May Michael, M. D. Orthopedic Surgery. Edited by John Ridlon, A. M., M. D., with the collaboration of Charles A. Parker, M. D. Series 1911. The Year Book Publishers, Chicago.

Advance Program of the Second Annual Meeting of the American Association for Study and Prevention of Infant Mortality.

McGill University Annual Calendar. Faculty of Medicine and Department of Dentistry. Eighteenth session, 1911-1912.

Northwestern University Bulletin. Medical School Announcements, 1911-1912.

Public Health and Marine-Hospital Service of the United States: Reprint from Public Health Reports, Nos. 65 and 63.

Public Health and Marine-Hospital Service of the United States. Hygienic Laboratory—Bulletins Nos. 76 and 77.

U. S. Department of Agriculture: Farmers' Bulletin 463.

Reprints by: Charles D. Aaron, M. D., Sc. D., Detroit, Mich.; W. H. B. Aikens, Toronto, Canada; Chas. H. Hughes, M. D., St. Louis, Mo.; John M. Wheeler, New York; Eli Long and E. W. Caldwell, New York; J. H. Woodward, New York; A. Ernest Gallant, New York; William Seaman Bainbridge, New York; G. A. Persson, Mt. Clemens, Mich.; W. Cheatham, Louisville, Ky.

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## Correspondence.

### TRANSMISSION OF DISEASE BY MEANS OF BOOKS.

To the Editor:

The undersigned is preparing a paper upon "Books as a Source of Disease" to be read before the next International Congress of Hygiene, and in order to obtain data, respectfully requests the readers of this note to send him an account of any cases, the source of which has been traced to books or papers, or where the evidence seemed to make books or papers the offender. He would also further request information where illness or even death has been caused by the poisons used in book-making.

All the information possible is wanted to present as complete a paper as possible. As in the case of insects which we now know to be "carriers of disease," it is first necessary to collect the scattered evidence in order to show that there is real danger in books; and this will compel better care to be taken of libraries and books and improve the health of mankind.

WM. R. REINICK,  
1709 Wallace Street,  
Philadelphia, Pa.



### Medical News.

The St. Alexis Alumni Association met at the Hollenden Hotel, Thursday, November 2. Papers were read by J. S. Tierney and T. J. Calkins.

The Lakeside Hospital Medical Society held the fifty-sixth regular meeting Wednesday, October 25, 1911. The program was as follows: Demonstration of Sequestrum from Ear containing Semicircular Canals, J. H. Ingersoll. Examination of Pelvic Organs in Doubtful Cases Through a Vaginal Incision, Hunter Robb. Presentation of a Case of Anterior Poliomyelitis in a Baby, C. F. Craig. Presentation of Two Adult Cases of Anterior Poliomyelitis, S. J. Metzger. Presentation of a Case of Intermittent Hydronephrosis, A. S. Jones. Demonstration of Pathological Specimens, H. O. Ruh.

J. E. Morgan of Mansfield is moving back to Galion, having repurchased a half interest in his former practice, at that place.

E. C. Brown, formerly of Massillon State Hospital, has located in Mansfield.

V. C. Myers, recently interne at the Ohio State Reformatory, has located on East 3rd St., Mansfield.

J. A. Burnett, formerly of Mansfield, has located in Plymouth.

The Muskingum County Medical Society met at Zanesville on Wednesday, November 8. The following program was presented: 1. Management of Typhoid Fever, J. T. Davis, Zanesville. 2. Differential Diagnosis of Urethral Discharge, A. E. Walters, Zanesville.

Academy of Medicine of Toledo and Lucas County: The General Meeting of the Academy was held Friday, Oct. 6, 1911. The program consisted of a paper upon Cerebral Decompression, by Chas. H. Frazier of Philadelphia, Pa.

The Pathological Section met Friday, Oct. 13, 1911. The program was as follows: 1. The Bacteriology of Milk, C. G. Souder; 2. Certified Milk as it is now Produced by the Academy of Medicine of Toledo, Chas. F. Tenney; discussion opened by H. J. Morgan.

The Medical Section met Friday, Oct. 20, 1911. The program was as follows: 1. Ectopic Gestation, Case Report and Pathological Demonstration, B. W. Patrick; 2. Glaucoma, Case Report, Walter H. Snyder; 3. Basedow's Disease in Children, Demonstration of Patient, Louis A. Levison; 4. The Hyper- and Hypothyroid Gland in Childhood, C. F. Tenney.

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### Deaths.

W. R. Hurst, Piketon, Ohio, died October 24, aged 74.

Nelson E. Bradley, Batavia, Ohio, died October 22, aged 53.

Willard B. Croft, Medina, Ohio, died August 26, aged 55.

Peter Fehr, Akron, Ohio, died October 21, aged 44.

Joseph Werthner, formerly of Dayton, Ohio, died October 20.

Thos. M. Sabin, Warren, Ohio, died November 6, aged 61.

Thos G. Herron, Cincinnati, Ohio, died October 22, aged 71.

Nathaniel R. Coleman, Columbus, Ohio, died October 31, aged 67.

Karl Zapp, formerly of Cleveland, Ohio, died October 25, aged 60.

# The Cleveland Medical Journal

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No. 12

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## **Profuse Recurrent Gastric Hemorrhage, With Report of Cases and Description of an Instrument for Viewing the Gastric Interior at Operation.**

By FREDERICK C. HERRICK, M. D., Associate in Surgery, Western  
Reserve University.\*

When called to see a patient who has fainted and later vomited a quantity of blood, the circumstances are often alarming and the course of treatment to follow by no means always clear. The possibilities are so numerous and varied that few rules can be laid down. Hemorrhage from the stomach occurs in such varied amounts, its size by no means measuring its clinical significance; it occurs at such varied times, frequent small hemorrhages often portending or producing more serious consequences than a large one; it occurs from such different causes, all the way from the toxemias and purpura to esophageal varices, gastric ulcer and cancer; and finally it occurs at all ages, from the acute peptic ulcer of young adults to the rupture of a thickened tortuous non-contractile vessel of an arteriosclerotic.

It is not my intention to enter upon a discussion of the subject but merely to outline the rules for surgical care, to report three cases and to describe a method for inspection of the gastric interior.

When is surgical care advisable in the treatment of hemorrhage of primary gastric origin?

1. The more chronic the ulcer the less able shall we be to permanently control hemorrhage from it by medical means. Its edges are callous and thickened, and an eroded vessel in such tissue cannot contract. The more chronic the ulcer the less efficient is medical treatment. This attitude of Küttner, Einhorn,

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*Read before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, November 3, 1911.*



Payr, Rodman and many others has gained general acceptance.

2. Repeated hemorrhage from an acute or chronic ulcer should receive surgical care after reaction from one hemorrhage and before the patient becomes a poor surgical risk by recurrent losses. Deaver remarks: "Surgery—successful surgery—cannot be done on patients who have no blood, and it is the physician's duty to learn before it is too late that only surgery can afford relief."

3. Operation during the hemorrhage or before the patient has reacted from the consequent shock is justified only in extreme emergency. The mortality from such treatment has varied from 40 to 88%.

4. The Leube and Mikulicz rule is still followed, i. e., a single gastric hemorrhage should have medical treatment; if repeated or small chronic hemorrhages occur, operate.

Rydygier in 1882 first suggested surgical interference in gastric hemorrhage. Mikulicz, and Roux first operated for the condition, the latter successfully. The direct method, i. e., ligation was then deemed essential. As gastro-enterostomy came into favor for ulcer it was performed in cases of severe or recurrent hemorrhage, whether the lesion was discovered at operation or not. It was long considered as entirely efficacious, although some operators (Mayo, Moynihan) rightly refuse to perform gastrojejunostomy unless the stomach lesion is actually demonstrated at operation. Since it has been well proved by such researches as those of Cannon and his coworkers, together with clinical experience, that gastrojejunostomy has its greatest value in obstructive lesions of the pylorus and duodenum and that only from 30 to 40% of extrapyloric lesions are permanently benefited by the operation, it is natural that a distrust of the procedure as a means of controlling gastric hemorrhage has developed. Numerous authors, Lemp, Czerny, Moullin, Robson and others have reported recurrence of hemorrhage from the ulcer after gastrojejunostomy for its relief. Quenu thought 25% died of recurrent hemorrhage. Many skillful operators have been unable to locate the bleeding point at operation. Deaver says: "Operations to locate and ligate usually fail." This can be very well appreciated when Robson reports the frequent difficulty or impossibility of doing so even postmortem. The vessels at this time, however, are empty, the tissues changed in appearance. In living tissues the difficulty is less, providing a

good view can be obtained of all parts of the gastric interior. in the following case reports the difficulty of doing so will be apparent although the Andrews-Moullin technic was used. Recently Dr. Coffey of Portland has described a method of dipping out the gastric contents at operation and thus exploring the stomach's interior. The danger of contaminating the peritoneum by this procedure is too great. In Case III a light-carrying speculum with gastric inflation was used.

Case 1. A married woman 25 years of age, no children, one miscarriage, no history of lues, had never had a serious illness except from stomach trouble. When first seen in February, 1909, she complained of periodic attacks of epigastric pain one to two hours after meals with vomiting, at other times sour and gaseous eructations. She had been through a Leube rest cure six years before but her trouble had returned. She was losing weight and came for surgical relief. At operation an indurated ulcer was found near the pylorus and a posterior, no-loop gastrojejunostomy made. The patient left the hospital in two weeks, gained ten pounds and was well until three weeks ago when, without warning, she had a profuse gastric hemorrhage and fainted. The temperature was 96°, pulse 68. Ice, morphin, bismuth by mouth and rectal feeding were immediately commenced. Three days later she fainted again but vomited only two or three ounces of blood. The pulse and temperature showed that a severe hemorrhage had occurred, the former being 56, the temperature 95°. At Charity Hospital, the same night another severe hemorrhage occurred. The hemoglobin was 60%, the patient's nose and extremities were cold and the mucous membranes were colorless. It is a well established rule not to operate in acute gastric hemorrhage unless recurrence of the bleeding threatens the life of the patient. I did not dare permit this patient to undergo another loss of blood, so after reaction had occurred the next day the abdomen was opened, while three pints of saline were given subcutaneously. By a longitudinal opening in the anterior gastric wall and with one hand, according to the Andrews-Moullin technic, in the lesser peritoneal cavity, the interior of the stomach was carefully explored by passing its surface before the opening in the anterior wall.

Two points of bleeding were found on each side of the old enterostomy opening. Part of the blood had passed into the



stomach and part into the intestine. One half the circumference of the opening was red and injected. It was impossible to control the vessel to this area surely, without endangering its nutrition, therefore the enterostomy opening was resected, the distal portion of the gut anastomosed with part of the opening left in the stomach, the remainder closed, and the proximal gut anastomosed to the side of the intestine six inches below, according to the Roux technic for the Y operation.

The patient made a normal recovery, was determined on leaving the hospital in ten days in an invalid carriage for her home, where she is now on a careful diet and restoratives to overcome her anemia. The specimen I present shows a large vessel at the base of one of the red points with a bristle in it which was the seat of the hemorrhage.

Case 2. Also a married woman, 56 years of age, having three sons living and well, and no miscarriages. She had never had a serious illness but had lost 15 pounds in the past four months and had eructations of gas and sour food and occasional vomiting. She was seen at 5 p. m., having suddenly vomited between one and two pints of blood. There was nothing in the patient's history or present condition to account for this hemorrhage except the present stomach trouble. A diagnosis of gastric ulcer or cancer was made. The same evening the patient had a second profuse hemorrhage and was removed to Charity Hospital. Medical measures were started, including rectal alimentation. The following day the patient vomited 24 ounces of blood. The pulse was 76, temperature 96°, hemoglobin 70%. The features were colorless, the tissues transparent. For fear of further hemorrhage, which would certainly reduce the patient's strength below that necessary for surgery, operation was decided upon and performed the next day with a pulse of 88 and temperature 98°.

Two or three enlarged glands were found on the lesser curvature, otherwise no external evidence of ulcer. The stomach was opened by a vertical incision and its interior explored as described in Case 1. It contained a small amount of blood but no ulcer nor bleeding point could be found. The incision was closed and a posterior gastrojejunostomy performed. During the operation one quart of normal saline solution was given beneath the breasts. The patient has made a good recovery. There has been no more gastric nor intestinal hemorrhage.

Having opened and explored the stomach twice by the above described technic I sought to devise a method which would be more satisfactory. Such a method must be more accurate than the above, i. e., the operator must be able to say there *is or is not* a lesion of the stomach mucous membrane. This cannot be done by present methods, all agree as to this. The cardia is re-

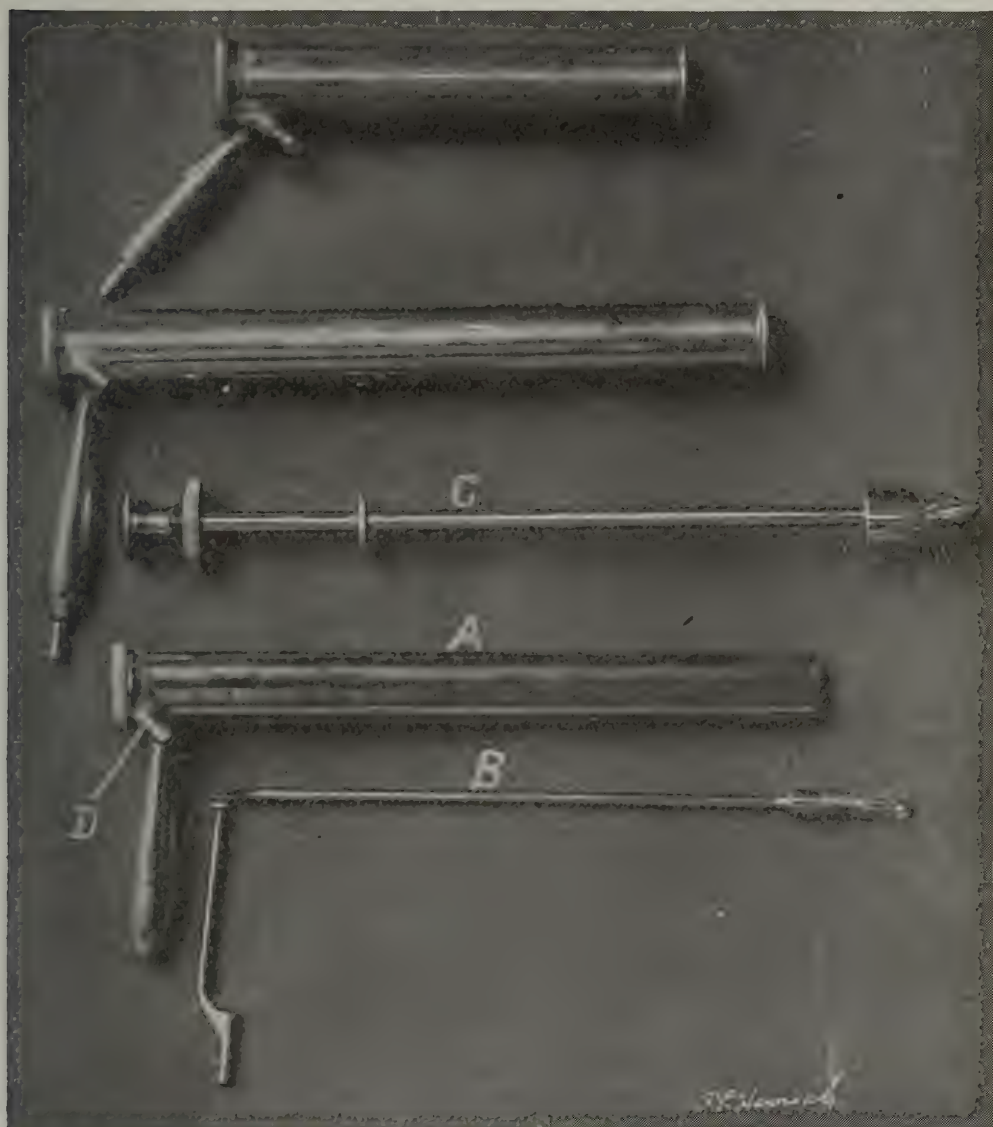


Fig. 1.

mote from the necessary stomach incision; the pylorus is lined with a voluminous, thick, folded, mucous membrane with every chance of thus obscuring or entirely concealing a small lesion; the stomach cavity is collapsed and when the posterior surface is brought to the opening in its anterior wall by a hand in the lesser peritoneal cavity, mucus or stomach contents are likely



to escape and must be carefully watched, however close the gauze packing has been. When the lesion is luckily placed it is readily found and brought to the opening according to the Mayo technic for the transgastric removal of ulcer of the posterior wall but at other times it is impossible to do so with safety. Less danger of contamination of the peritoneum is therefore also necessary. Finally, in making the exploration there should be less injury to the stomach wall. At present nothing can be done through an incision in the stomach itself of less than two inches, and a three inch incision is necessary for a sure inspection. The location of the incision makes little difference, the nearer the pylorus the better, but then other parts of the stomach cannot be seen; the pylorus is essentially the muscular part of the stomach and injury to it is undesirable. From an external examination of the stomach also we cannot always be certain of the presence or absence of ulcer.

To meet these requirements I had an instrument made similar to a direct vision cystoscope but larger. (Fig. 1, A). It is eight inches long, three-fourths inch in vertical and one-half inch in transverse diameter. The lower one-fourth inch of the oval end is occupied by a specially constructed lamp of three candlepower with a lens in its end. This lamp is removable on the carrier (B). When in place the carrier fits into the instrument's handle being held firmly by the screw eyepiece. An obturator (C) renders the introduction of the tube through a small opening easy. By the nipple (D) a bulb with a long tube is attached through which the stomach is inflated by an assistant. I sought to make this instrument of as small a diameter as possible and to this end experimented at length with direct and indirect vision cystoscopes. The area to be searched in the stomach is far larger than in the bladder where a triangle of the dimensions of two or three inches forms the point of interest. It was found impossible in the dog's stomach to be sure of covering its entire surface with so small an instrument. Moreover, to do so in the larger human stomach would require a much longer time than is justified under the conditions of the operation. Further, a cystoscope is made with a beak which carries the light away from the line of vision. Such a beak would be in danger of perforating an ulcerated area, especially if passed through the pylorus in search of a duodenal ulcer. For these and other

mechanical reasons the instrument above described was thought and has proved to be the most satisfactory.

Technic: After exposure of the stomach through as small an incision as feasible a purse-string an inch in diameter is placed preferably five or six inches from the pylorus; an incision made; the instrument introduced and the purse-string tied about it with a bow-knot sufficiently tight to prevent the escape of gastric contents. The light carrier is introduced, the eye piece screwed on, the stomach slightly inflated sufficient only to keep its walls apart, the light turned on and the inspection begun. In this manner an ulcer or bleeding point of small size which would be discoverable otherwise only by chance can be readily found.

Case 3 was a single woman of 22 yrs. Her family history was negative. She had had acute articular rheumatism at 12 yrs. of age from which she recovered without complications. For the past five years she had had periodic attacks of pain, sour eructations, distress, not relieved but made worse by food. She vomited large amounts of blood four times, the last attack was three days before the present consultation.

On examination she was anemic, hemoglobin 80%, pulse 64, temperature 98.4-5°. The general examination was negative. The stomach on inflation was one-half inch below the navel and extended to the left anterior axillary line. She had had varied medical care, including a rest cure, without permanent benefit and was sent for surgical relief. On exposure of the stomach no ulcer was discoverable by external examination, no adhesions, no scar, no fibrin, no vascular arrangement suggestive of ulcer within. On inserting the gastroscope the pylorus was found the seat of a small ulcer. There was no bleeding. Because of the location of the ulcer, at the pylorus and causing partial obstruction, ligation of the vessel supplying the area was not thought necessary and a posterior no-loop gastrojejunostomy was performed. In support of non-ligation of the vessel supplying this area, I may say, there was no bleeding from the ulcer at the time of operation. The vascularity of an ulcerated area must be free in order to favor its healing. In fact the work of MacKenzie has recently shown by injections that duodenal ulcers frequently occur in areas where the duodenal blood supply is poorest. The patient made a good recovery without further hemorrhage.



## CONCLUSIONS.

1. Definite knowledge of the location and condition of an ulcer is necessary for its adequate surgical treatment. This may sometimes be gained by extragastric examination. At other times direct inspection of the ulcer is necessary.

2. Recurrent or surgical gastric hemorrhage is not adequately treated until the vessel is ligated. This can be surely done only when the vessel can be quickly found.

3. This instrument renders inspection of the gastric interior far safer, without danger of soiling the peritoneum and with less injury to the stomach than the usual method of inspection through a long anterior incision.

After completing the above report the work of Rovsing, Kraft and Göbell was found. These authors have used Rovsing's method, in all essentials similar to the above, and also his method of diaphanoscopy which they have found of great value.

## REFERENCES.

- Küttner: Arch. f. klin. Chir., LXLIII, 410.  
 Einhorn: Diseases of the Stomach.  
 Payr: Arch. f. klin. Chir., XCII., 1910, 199.  
 Rodman: Transactions Am. Surg. Assn., 1908, p. 189.  
 Deaver and Ashhurst: Surgery of the Upper Abdomen, p. 110.  
 Finsterer: Beiträge z. klin. Chir., LXV, Heft, 3.  
 Robson: Keen's Surgery, II, 870.  
 Quenu: Quoted by Kraft.  
 Coffey: Surg. Gyn. & Obst. XI, 1910, 545.  
 Lemp: Langenbeck's Arch., LXXXVI.  
 Rovsing: Arch. f. klin. Chir. LXXXVI, 575.  
 Kraft: Arch. f. klin. Chir., XCIII, 1910, 557.  
 Göbell: Deutsch. Gesellsch. f. Chir., April, 1910, p. 295.

112 Lennox Bldg.

## The Application of Roentgen Methods in the Study of Intra-thoracic Diseases.

By GEORGE F. THOMAS, M. D., Cleveland.

Among the new procedures that aid in the making of earlier, more complete and more accurate diagnosis, the Roentgen method may be mentioned as one that has acquired a position of definite usefulness. It is without question the most precise means now available for obtaining an exact conception of anatomical relations, and for determining the nature and the extent of pathological processes in so far as they affect a variation from the normal density of the involved tissues. It is therefore a method

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of exceptional value in the study of intrathoracic diseases, most of which produce characteristic changes in the density and structure of the thoracic viscera, or in their shape and position.

A competent interpretation of these radiographic findings frequently presents all the information needed to establish a diagnosis; and this is a proper function for it to assume in those cases where the clinical picture lacks confirmation by the usual physical signs and the laboratory findings. Usually, however, the functions of an x-ray examination are, to check up the data obtained by the older methods and to assist in its interpretation; to detect lesions which escape detection by physical examination; to record visibly the exact extent of pathological changes; and to furnish a permanent record for future reference and comparison. The quality of the diagnoses and prognoses deduced from a collaboration of this nature is in keeping with the ideals of modern medicine.

In the interpretation of radiographs, certain fundamental principles must be borne in mind, the chief of which is that an x-ray plate is not a photograph, but a composite record of superimposed shadows, which vary not only in intensity in proportion to the density of the traversed tissues but also in size, shape, and detail in accordance with the definite physical laws of shadow projection. These factors may possibly appear too axiomatic to deserve mention; but the fact remains that the tendency to regard radiograms as photographic negatives is still prevalent. It is then perhaps pardonable to recall that the light areas in a radiograph are the shadows, due to increased density, while the dark areas represent the absence of shadow or decrease in density.

In regard to the technic of making an x-ray examination of the chest, only two points need be mentioned here; the first regarding length of exposure; and the second about position. The exposure should not be longer than the few seconds of an easily sustained inspiration.

If stereoscopic views are made, the two plates must be completed within the same limit. This secures good contrast and the maximum of detail. Concerning position; at least two views should be obtained; namely the antero-posterior and the postero-anterior. Stereoscopic anterior and posterior views make an ideal series.



The central dense area in a radiograph of the chest is due to the combined density of the sternum, heart, mediastinal contents and the vertebrae. Of about equal density is the shadow of the lower boundary of the thorax produced by the liver and diaphragm. Normal inflated lung tissue produces practically no shadow at all. The radiating areas of medium density on both sides of the heart are caused by the combined shadows of the pulmonary vessels, bronchial walls, and the accompanying lymphatic and connective tissues. The ramifications from the hilus

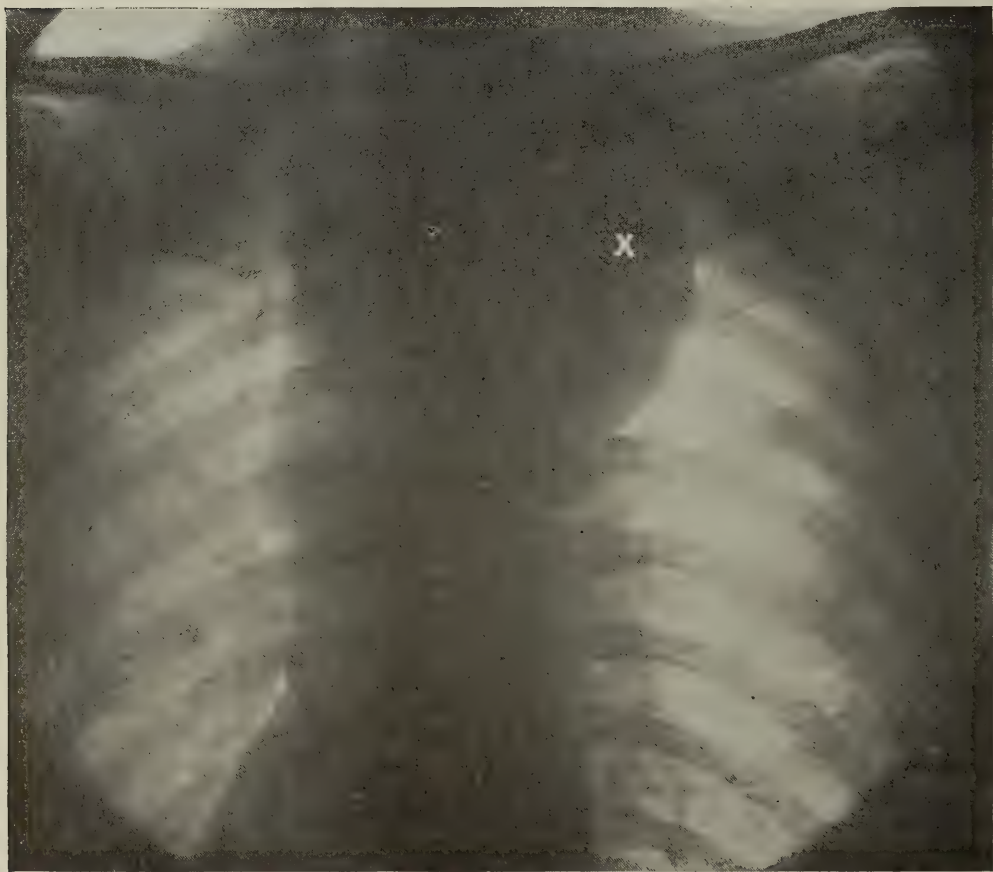


Fig. 1. Aneurysm of the arch of the aorta (X).

shadow run toward the periphery of the lung, and constitute the fine markings found in the darker areas between the rib shadows.

Analyzing the central shadow, we find variations in density which differentiate the trachea, the heart, and the aorta. The upper curve on the left is caused by the aorta which can also be traced as it passes through the other shadows. The middle curve represents the left auricle, and the dense pear-shaped area below shows the left ventricle. The right heart casts the lower

curve on the right side and the superior vena cava causes the upper.

The radiograph thus gives accurate information regarding the size, shape and position of the heart and aorta; and abnormal variations such as thoracic aneurysm, dilatation of the heart or its different chambers, and pericardial effusion can be easily recognized.

In cases of mediastinitis, there is increase in the width of the mediastinal area, evidenced by a vertical shadow to the right



Fig. 2. Aneurysm of the descending arch of the aorta (X).

of the vertebral column and extending from the shadow of the right auricle upward to the clavicle.

The radiographs showing thoracic aneurysms, show the typical enlargement of the aorta, with smooth contour, and displacement of the heart according to the location of the lesion. In large aneurysms of the arch, the heart assumes a horizontal position, due to elongation of the aorta and consequent displacement downward of the base of the heart. In the diagnosis of



small aneurysms, it is sometimes necessary to make an oblique view, from the left scapular region posteriorly to the right pectoral region anteriorly, to project the shadow of the aorta between the vertebral and sternal shadows.

The differentiation of mediastinal abscesses and pulsating tumors from thoracic aneurysm is sometimes difficult, but usually it is possible to distinguish the outline of the aortic density as it passes through the other shadows. The outline of a mediastinal growth is usually irregular and is apt to extend in a characteristic mass into the lung area.



Fig. 3. A, Stomach. B, heart shadow. C, mediastinal tumor, metastasis from a malignant growth of the thyroid. D, shadow of enlarged liver.

In the plate shown in Fig. 3, the heart has been displaced downward, and the upper mediastinal area has been filled with dense tissue, the border of which is distinctly regular. In these features, the mass resembles an aneurysm. The aortic shadow however is distinguishable as an area of greater density, which is of normal size and outline. Thus aneurysm is eliminated.

As an aid in the differential diagnosis between mediastinal tumor and mediastinal abscess the radiographic findings would indicate the former in spite of the regularity of outline because an abscess of this size would produce more density.

In regard to displacements of the heart, it may be said that the Roentgen method is final; the position indicated by stereoscopic radiographs is mechanically accurate. For purposes of differential diagnosis, this precise knowledge of cardiac position is of evident importance. We find displacements due to pleural effusions, the contraction of pleural adhesions, aneurysms, pneumothorax, mediastinal tumors and abscesses, besides those of congenital origin such as *cardia dextra*. The radiographs of course usually indicate the process which produces the displacement and some of the phenomena observed are of special interest. In one of the plates, showing an enormous amount of fluid in the left side\*, there is no displacement of the heart to the right. On the contrary, it has been pulled to the left and held there by adhesions. In others, downward displacement of the base of the heart is shown resulting from the pressure of mediastinal processes and aneurysms. In another plate, showing pleural adhesions, pleural effusion, and a pneumothorax localized by adhesions to the space between the root of the right lung and the mediastinum, we have a marked displacement of the heart to the left.

From the examination of a radiograph, we can also determine the position and contour of the diaphragm. Normally the right diaphragm is somewhat higher than the left. Any marked variation of this relation is pathological, and accordingly of diagnostic value. In one of the plates of hydrothorax demonstrated, the heart is displaced far to the right and the left diaphragm markedly downward. Distortion of the diaphragmatic curve can also be shown, and a demonstration of this condition is pathognomonic of old pleural adhesions.

Thus far, we have considered mainly the evidence of variation of size, shape, and position of the thoracic viscera. Even if the Roentgen method could be of no further service than to furnish information of this nature, its field of usefulness would be extensive. It is, however, evident that on account of the almost total absence of density in the normal lung, even the slight-

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\*It has been impossible to reproduce in this article all the plates demonstrated at the time this paper was read.



est amount of pathological change produces a recognizable contrast on the radiographs. Hence, with a proper knowledge of the difference in shadows produced by different disease processes, it is possible to obtain much information of differential diagnostic value. A study of this kind depends upon variations in the structural detail and the relative densities of the various shadows, as well as upon their relative shape, size, and position. A general consideration of the interpretation of these various shadows may be of interest.



Fig. 4. Tuberculosis of right apex (A). Note increased density of hilus shadow (B).

In the region of the hilus shadow, we usually find small circumscribed areas of moderate density and others of intense density, the latter of which represent calcified glands. The former represent enlarged bronchial glands. In cases of pulmonary tuberculosis, these hilus shadows become especially prominent. Associated with this phenomenon, is the marked accentuation of the radiations at the root of the lung. This is due to the infiltration of the peribronchial tissues, and is one of the important

diagnostic findings in incipient cases. This accentuation of peribronchial density usually extends directly to the area of lung involvement, and may be studded with small foci of greater density, which have been found to represent tubercles. These two findings are present in practically all cases of pulmonary tuberculosis. The other characteristic shadows needed to complete the picture, vary in density and structure according to the kind, as well as the stage and extent of the process.

In the type known as acute tuberculous bronchopneumonia,, we find the diseased lung studded with small tubercle-like white areas, with a general slight increase in the density of the surrounding lung. The excursion of the diaphragm on the same side is lessened, but compensated for by the increased excursion of the other.

In the ordinary advanced tuberculous infiltration, we find larger areas of increased density, showing consolidation; associated with shadows of calcified tubercles; accentuation of the hilus density; and usually definite evidence of the other common pathological changes such as pleural adhesions, effusions and cavities. The caseous tissues appear markedly dense. If degeneration of the caseous mass has gone on to cavity formation, the cavity would be recognized on the plate as a darker area surrounded with a definite wall of lighter shade. In these advanced cases, the diagnosis, of course, could be made from the physical examination without difficulty. The chief value of the radiograph of such a case would be in verifying, extending and recording the data obtained by the physical examination and also, if necessary, in convincing the patient of his condition.

The function of greater usefulness of the Roentgen method is in the examination of suspicious incipient cases; to verify uncertain physical findings or to present definite evidence of diseased tissue even before the physical signs become sensible. That a competent x-ray examination fulfills this function is now conceded by many conservative clinicians, who have made a comparative study of the value of the Roentgen method as an aid to the positive diagnosis of these very early cases. The x-ray plate of an incipient case reveals over the affected area a slight relative increase in density of a diffuse mottled, hazy appearance, with increased density of the corresponding peribronchial tissues and accentuation of the hilus shadow. In the radiographs here shown, processes of this nature can be seen.



In those cases where the abnormal shadows consist of sharply defined markings of increased density, instead of the diffuse mottling, a healed tuberculous lesion is suggested. If the plate shows that this is accompanied by an extensive amount of calcification, good resistance is indicated, and a favorable prognosis is justifiable.

Other pathological conditions that produce density in lung

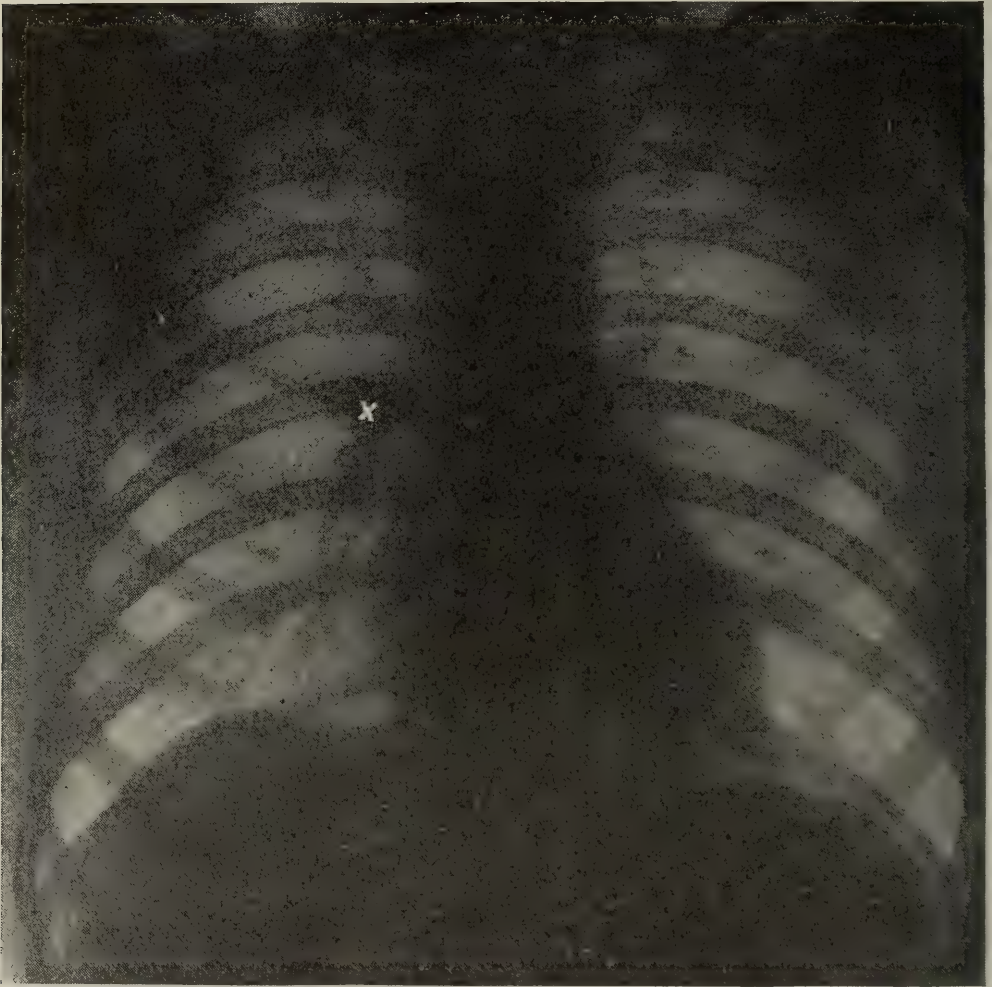


Fig. 5. Calcified glands (X) in a case of healed tuberculosis.

tissue are pneumonia, bronchiectasis, lung abscess, syphilis and tumors. In pneumonia, the involvement produces a veil-like appearance over the affected area; and there is an absence of the tubercle-like shadows. Fortunately, the clinical and physical findings in these cases are usually conclusive, and it is rarely necessary to resort to the Roentgen method. In case of doubt, however, the x-rays should be used only with the greatest precaution, as the exposure is liable to produce a serious absorption

of toxins. In unresolved pneumonia, the exposure, if properly applied, tends to stimulate resolution, and may be used with very beneficial results.

In bronchiectasis, the findings are variable. In well marked cases, we find a plexus of enlarged bronchi with density increased because of the contained pus. I have usually found this located toward the base of the lungs, posteriorly, midway between the scapula and the vertebral column. When aspirated, only a few drops of pus have been obtained, and then only after repeated

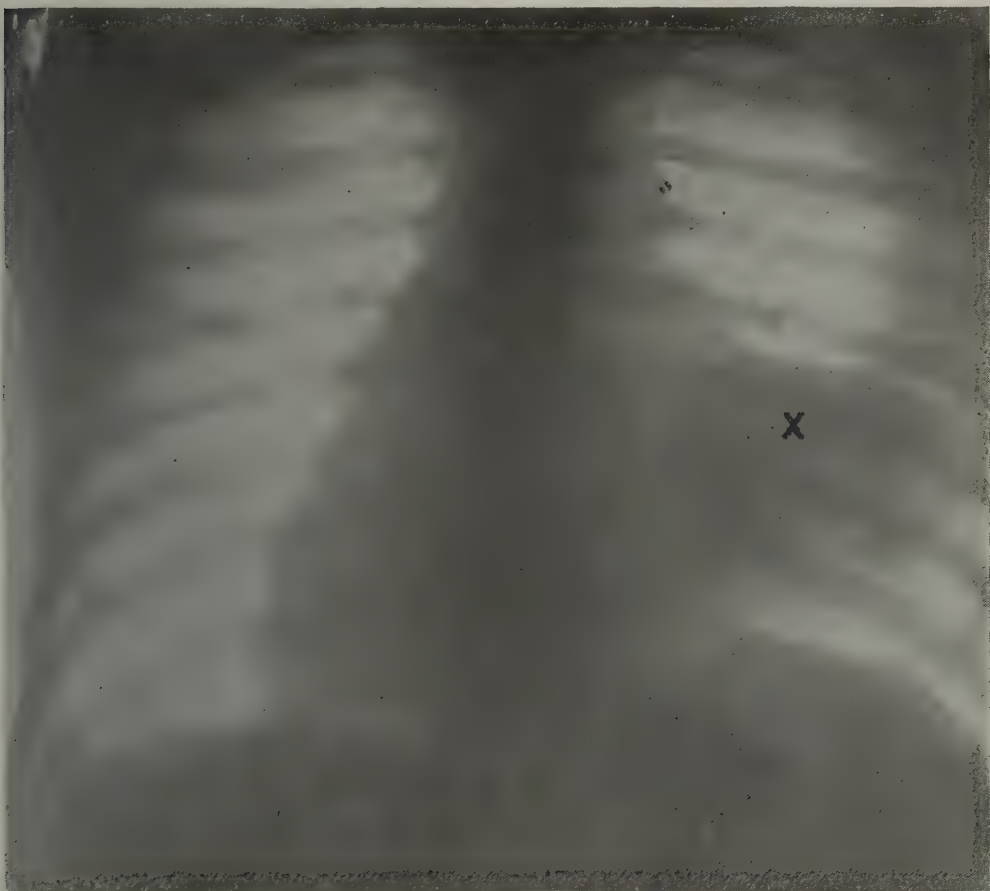


Fig. 6. Abscess of Lung (X).

efforts. Although the amount of purulent expectoration may be enormous, a large localized collection of pus is rarely found in these cases.

In abscess of the lung, the density of the involved area is very marked and uniform except for the superimposed shadows of other structures. In the plate demonstrated (Fig. 6), the upper boundary is the interlobar pleura; the lower boundary is irregular and consists of radiating densities, due to the infiltration of the adjacent lung tissue. This case was examined stereoscopically



and the result is a beautiful demonstration of the efficiency of this method. In this manner the healthy lung tissue can be seen on all sides of the abscess, thus demonstrating it to be a central lesion, and explaining the absence of physical signs. The greatest value of the radiograph in this case, next to revealing the diagnosis, consisted in the demonstration of the tongue-like projection toward the fourth interspace in the anterior axillary line, thus showing the most favorable point for paracentesis.

In syphilis of the lung, which often gives clinical and physical findings quite similar to tuberculosis, the radiograph presents

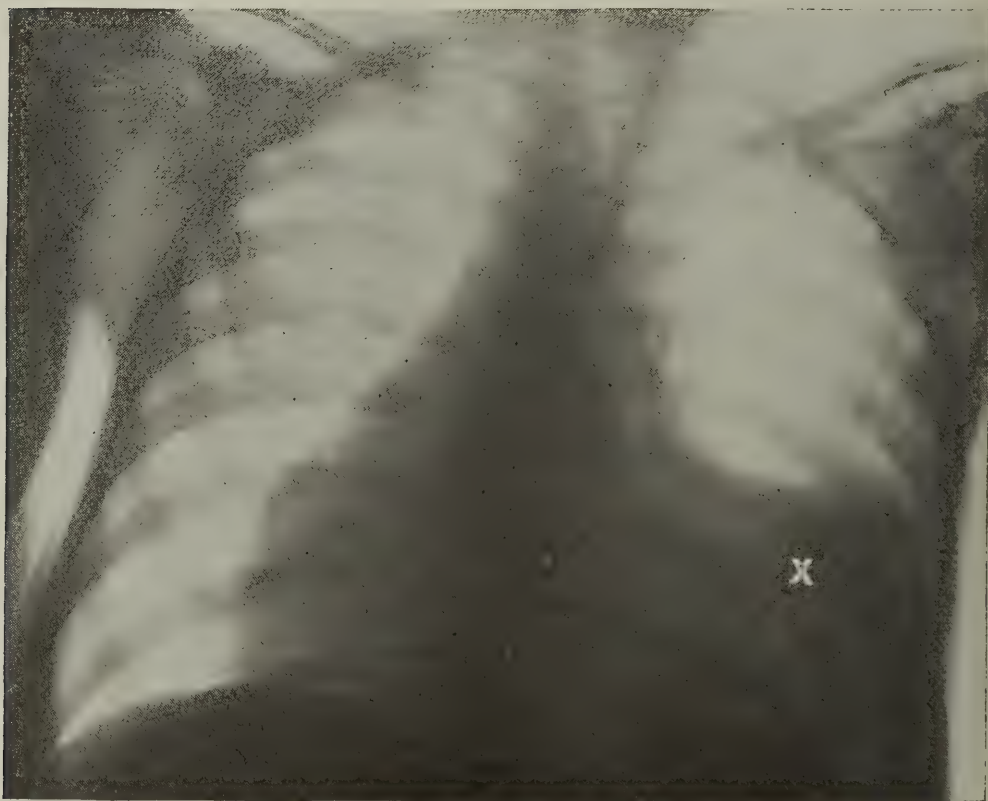


Fig. 7. Pleural Effusion (X).

differentiating characteristics. The hilus shadow and the ramifications to the involved area are increased in density, but this density is homogeneous and is not apt to contain the areas of intense density, unless there is also a tuberculous condition present. The density over the diseased lung tissue shows the same tendency to present a homogeneous appearance and there is no evidence of tubercle formation.

Malignant tumors of the lung tissue produce shadows, which, in proportion to the size of the lesions, are very dense. In the

plate here shown, metastases are scattered throughout the lungs. These scattered areas are not sharply defined, but appear to blend into the lung tissue. They are of about uniform density.

The recognition of pleural effusions is comparatively easy. The density is uniform, and shows in some cases the characteristic tendency to extend higher at the periphery. In addition, we are aided in interpretation by the displaced position of the heart, and sometimes of the diaphragm, and the increased density of the collapsed lung.



Fig. 8. Pneumothorax (X).

In emphysema, cavitation, and pneumothorax, we have conditions that show on the plate as an absence of density, or what I will call increased radiotransparency. Emphysematous lung is more radiotransparent than normal lung, and the lung markings are relatively more evident. The appearance of cavitation I have already described.

In pneumothorax, the corresponding area on the plate is characterized by a markedly increased radiotransparency, with well defined boundaries. The shadows of the superimposed



structures are unusually distinct and show more contrast and tissue detail than when complicated by the normal amount of other shadows.

In the plate showing pneumothorax confined by adhesions to a space between the right lung and the mediastinum, the shadow of the heart and mediastinal contents is displaced to the left and we can see the structural detail of the thoracic vertebrae with unusual clearness.

It can be seen from a study of these plates that pathological conditions produce distinct evidence of their nature when projected on the radiograph. When properly interpreted in terms of density, these shadows present definite data, which can be utilized to advantage in correlation with the clinical and physical findings in the deduction of more accurate and complete diagnoses.

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### **The Necessity of Orthodontic Interference in Malformation of the Dental Arches and Maxillae.**

By FRANK M. CASTO, M. D., D. D. S., Cleveland.

This subject is quite intimately associated with the work of the rhinologist and of the orthodontist. I do not think there has been enough cooperation between these specialists in the past to obtain the best results for their patients; whether it has been the fault of the orthodontists or of the rhinologists I do not know. However, being listed under the head of the former, I quite naturally lay the blame at the door of the latter.

The rhinologists have long recognized that facial deformities were produced by nasal stenosis and consequent mouth breathing, and the characteristic adenoid face is familiar to all of you. While the adenoid face has been graphically described in several textbooks and by numerous men I do not think the extent of the deformity in the bones of the face, especially the maxillae, has been properly recognized. I do not think that it has been generally understood by the rhinologists that a correction of the abnormal bony formation must be made after a nasal operation in order to get the most practical and satisfactory results. In fact in many cases operations for adenoids and upon

the nasal tissues are practically useless without the subsequent orthodontic correction of the bony structure.

Within the last two or three years there has been considerable discussion regarding the effect the orthodontic treatment of the dental arches has upon the nasal spaces and the nasal septum. Various methods of procedure have been suggested and followed out with more or less satisfactory results. There has been more discussion, in so far as the rhinologists are concerned, in the treatment of adult cases and cases in which there existed a contracted dental arch, high palatal vault, a deflected nasal septum and constricted nasal chambers. These cases have been treated mostly by opening the median suture by a rapid expansion of the dental arch. It is claimed, and I believe correctly too, that by this method the deflected nasal septum will fall in between the edges of the bone at the open suture and thus become straightened and that the nasal portion of the upper maxillae will be moved laterally so that the nasal chambers become considerably enlarged. Today I desire to discuss more especially the relation of the development of the upper maxillae to the nasal septum and nasal fossae and the relation of the occlusion of the teeth and their proper use to the growth of the upper maxillae. "The first indication of the formation of the nose in the embryo," wrote Hartz in a recent paper, "may be seen at the second month when a groove makes its appearance on the frontal protuberance, then two projections form on each side, termed nasal processes, the external pair developing the outer wall of the nose, the internal forming the septum. The mandibular or first pharyngeal arch divides into two parts, the superior joining with the opposite side to create the upper jaw, while the union of the inferior maxillary portions go to form the lower jaw, and the nasal processes grow downward at the tenth week reaching the floor of the nose which has been formed by the union of the two superior portions of the mandibular arch. The septum of the embryo is formed of two parts, which coalesce at the second month and which at this time consist of cartilage. Beginning at the third month of intra-uterine life ossification begins on both sides of the septum, which now unites to form the vomer. Into the groove of the vomer the perpendicular plate of the ethmoid is fitted in its anterior aspect, the rostrum of the sphenoid bone joins above and the nasal crest of the superior maxillary and the palate bones below. At birth the ethmoidal portion of the nasal



space is twice as high as the maxillary portion, while in the adult they are of equal height. The increase in the size of the maxillary portion being due to the descent of the hard palate. At birth the crowns of the temporary teeth are in their crypts in the body of the superior maxillary bone, the crypts being almost in contact with the orbital plate, (Fig. 1) at the time of the eruption of these teeth a notable development of the nares takes place, the superior maxillae increase their dimensions and give rise

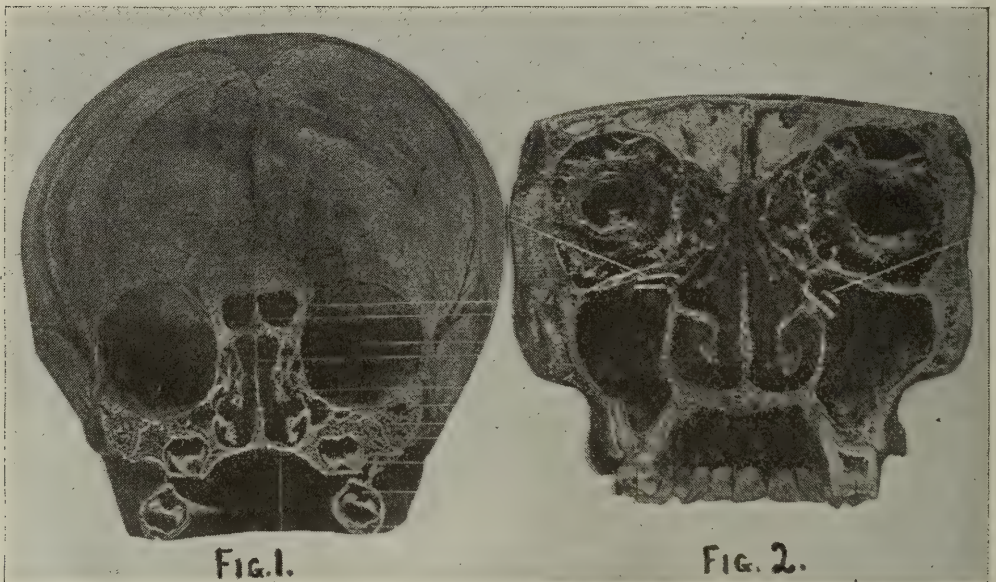


Fig. 1. Vertical transverse bilateral section from the skull of a fully developed embryo. This illustrates the relative position of the first teeth in their crypts to the orbital plate and nasal fossae and the relatively small amount of space in the maxillary portion of the nasal fossae.

Fig. 2. Vertical transverse bilateral section from the skull of an adult. This illustrates the relative position of the permanent teeth to the orbital plate and nasal fossae and the relatively large amount of increased space in the maxillary portion of the nasal fossae.

to the formation of the maxillary sinus. The superior maxillae continue to develop in all directions during the formation and subsequent eruption of all the permanent teeth. (Fig. 2). The nasal spaces increase in size by the downward growth of the hard palate. In proof of this it may be said that in the embryo the hard palate is above the level of the mouths of the Eustachian tubes, while in the new born it lies on an even plane and later about the eighth year considerably below it. The nasal space is lengthened by the growth of the palate in the antero-

posterior direction, and by the development of the alveolar process, which is to support the full set of permanent teeth."

By a consideration of these facts in development you will all readily see the intimate relation that exists between the formation of the nose and of the dental apparatus, and this relation obtains from practically the first evidences of development in embryonic life until completion of development in adult life. You must therefore recognize the fact that anything that interferes with the proper growth of one will of necessity influence the growth of the other.

That the occlusion of the teeth and their proper use is a very important factor in the development of the maxillae there

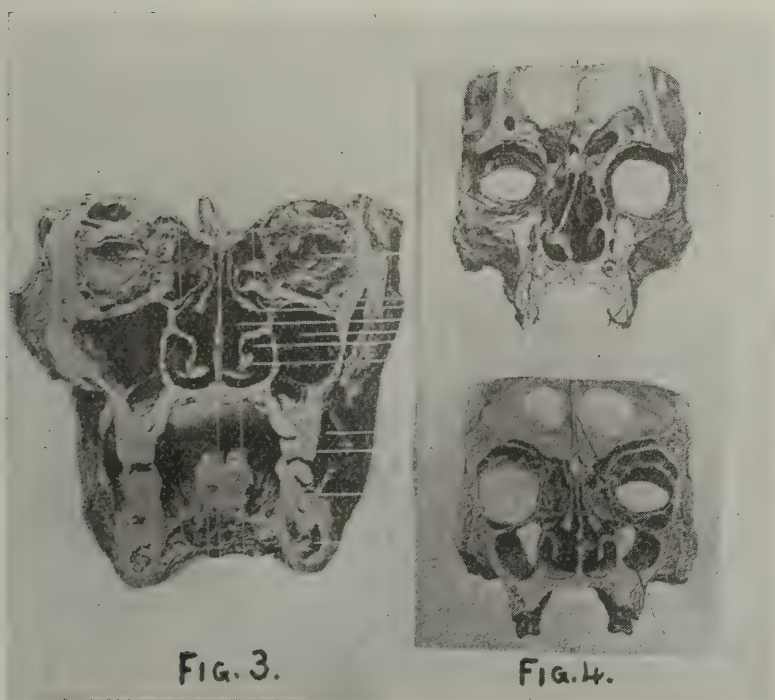


Fig. 3. Vertical transverse bilateral section of the head, illustrating practically normal development of all the bones of the face, wide palate, normal fossae, straight septum and a perfect occlusion of the teeth.

Fig. 4. Vertical transverse bilateral section of the head, illustrating constricted dental arches, malocclusion of the teeth and a consequent arrested development of the bones of the face, constricted nasal fossae and a deflected septum.

is little doubt. (Figs. 3 and 4). Most authorities agree upon this point. The following from the pen of a man who has devoted a great deal of time to investigations along this line seems quite logical: "The pressure brought to bear upon the upper teeth by the forcible closure of the jaws (the force being from





such pressure and strain is greatest. This thickening is caused by the periosteal deposition of bone. The malar bones are enlarged, the buttresses of the upper maxillae descending from the malar bone is thickened and enlarged and the ascending process

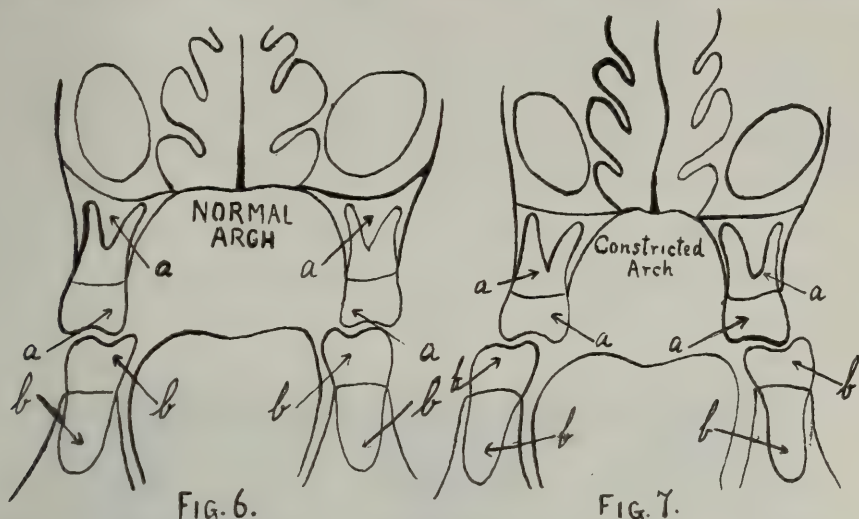


Fig. 6. Vertical transverse bilateral section illustrates a normal sized dental arch with proper occlusion of the molar teeth, and the effect that the force of occlusion has in a determination of the ultimate form of the hard palate and nasal fossae and the stimulus furnished for the proper development of the other bones of the face. Let us assume that such a condition illustrated by Fig. 6 existed in a child eight years of age. In such a case the proper growth of the maxillae and other associate bones would be assured. The force of occlusion of the teeth applied as indicated by arrows aaaa and bbbb and which force is from 85 to 100 pounds pressure every time the jaws are closed and during mastication, furnishes the stimuli necessary for the ultimate and complete development of these bones. Every time the teeth meet in occlusion the tendency is to force the apices of the roots of the upper teeth laterally, thus widening the hard palate and increasing the nasal spaces.

Fig. 7. Vertical transverse bilateral section illustrates a constricted dental arch with malocclusion of the molar teeth and the effect such a condition would have upon the ultimate formation of the hard palate, and nasal fossae. The force of occlusion as applied and indicated by arrows aaaa and bbbb is a perverted force and tends to cause the apices of the roots of the teeth to converge and thus further constrict the dental arch causing a relative elevation of the hard palate and a constriction of the nasal fossae. The effect that the normal and perverted force of occlusion would have upon the nasal septum is illustrated in Fig. 5.

of the maxillae is also enlarged and the eyes may even be forced to become a little wider apart by the broadening of the ascending process of the maxillae. It is not only the outer surfaces of the



bone that the heavy pressure and strain of efficient mastication stimulate to develop, but it affects the deposition of bone in the articular sutures. Thus, then, there is a deposition of bone along the median suture uniting the maxillae and palate bones and a consequent broadening of the nasal fossae, especially the maxillary portion. This ideal development occurs only where there is a perfectly normal occlusion of the teeth, and the dental disc is of normal width and length and the teeth and jaws are used correctly in the act of mastication."

The development of the bony structure, of necessity, extends over a period of several years, and it will grow right or wrong as the occlusion of the teeth is normal or abnormal and

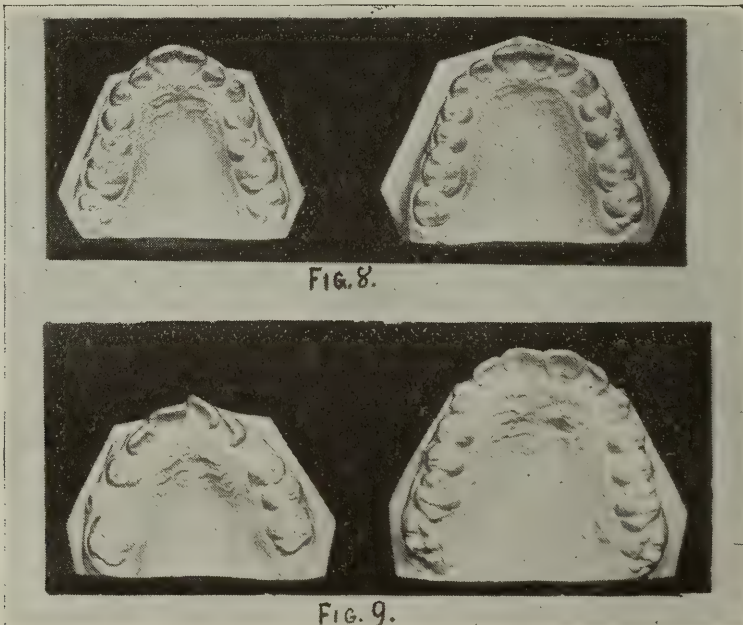


Fig. 8. The difference in the size of the dental arches before and after treatment. The measurements in this case were as follows:

Width before, from buccal to buccal, first bicuspid	1 11/16 inch
Width after, from buccal to buccal, first bicuspid	1 15/16 inch
Width gained $\frac{1}{4}$ inch.	
Width before, from buccal to buccal, second bicuspid	1 12/16 inch
Width after, from buccal to buccal, second bicuspid	2 2/16 inch
Width gained $\frac{3}{8}$ inch.	
Width before, from buccal to buccal, first molar	2 1/8 inch
Width after, from buccal to buccal, first molar	2 3/8 inch
Width gained $\frac{1}{4}$ inch.	

Fig. 9. The difference in the size and shape of the dental arches

of another case before and after treatment. The measurements in this case were as follows:

Width before, from buccal to buccal, first bicuspid	1 7/8 inch
Width after, from buccal to buccal, first bicuspid	2 3/16 inch
Width gained 5/16 inch: over 1/4.	
Width before, from buccal to buccal, second bicuspid	2 3/32 inch
Width after, from buccal to buccal, second bicuspid	2 3/8 inch
Width gained 9/32 inch: over 1/2.	
Width before, from buccal to buccal, first molar	2 5/16 inch
Width after, from buccal to buccal, first molar	2 8/16 inch
Width gained 3/16 inch.	

the pressure and strain brought to bear upon the upper arch of teeth by the clinching and grinding of the lower jaw during mastication, is correct or perverted. Assuming that what has been said is true, and I believe it is, the proper time for orthodontic interference for the prevention or correction of malformation of the maxillae and dental arches is in the young child. The result then is positively assured and is accomplished with much less difficulty to the patient and to the orthodontist. I think the same law holds good in orthodontia as it does in any other surgical work for the correction of deformities and I firmly believe that it is just as necessary to correct the malformations in the maxillae as concerns orthodontia, as it is to remove adenoids or any other nasal obstruction as concerns rhinology.

What I have said today has been purely from the orthodontist's viewpoint and I have purposely eliminated all other factors concerned in the development of the maxillae and nares.

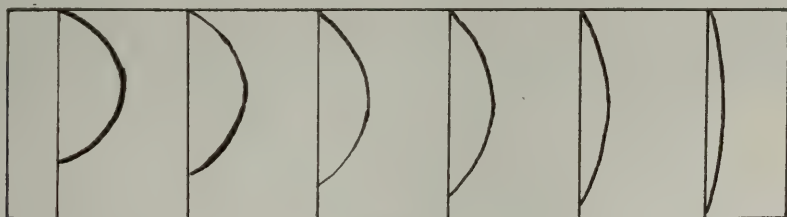


FIG. 10.

Fig. 10. Demonstrating the relative shortening of a plate two inches long as to the degree of the bending of such plate. When the plate is bent 20/32 of an inch it is shortened 3/4 of an inch but when the plate is bent 5/32 of an inch it only becomes 3/128 of an inch shorter. In the last illustration to the right the degree of bending of the plate is considerable, while the shortening is scarcely perceptible. Very little lack of growth between the upper attachment of the nasal septum and the palate would be sufficient to cause considerable buckling or bending of the nasal septum.





FIG. 11.

Fig. 11. Photograph of a boy about four years old, taken before and after an orthodontic operation.

This case was treated by Dr. Wilhelmina Mendel of Minneapolis several years ago. Observe the very great difference in the two pictures. The dental arches were put into their correct relation by moving the lower jaw forward.



FIG. 12.

FIG. 13.

Fig. 12. Photograph of a child about nine years of age, taken before and after an orthodontic operation.

This case was treated by Dr. O. W. White of Detroit. The child was a mouth breather and a typical adenoid case, the dental arches were constricted, the upper incisors protruding and the lower arch was in a posterior position in its relation to the upper. The adenoids and tonsils were removed and the orthodontic operation performed with the beautiful results shown in the photograph on the right.

Fig. 13 is a picture of the casts of this case.

#### CONCLUSIONS.

1. The work of the rhinologist and orthodontist in many cases is very closely correlated.

2. The development of the upper maxillae and of the nasal structure is intimately associated throughout the formation of these bones.

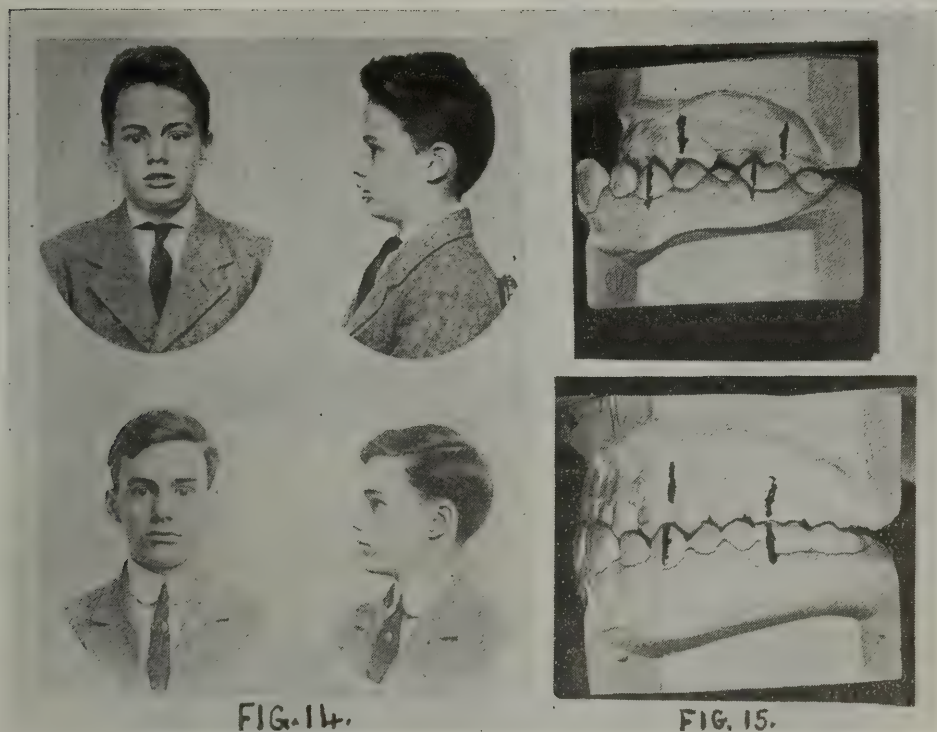


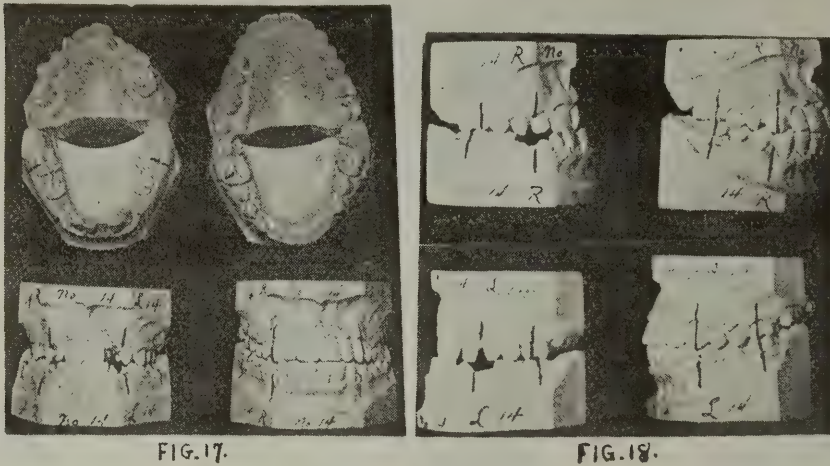
Fig. 14. Photograph of another boy taken before and after the orthodontic operation. This is another mouth breather and typical adenoid case. Observe the results in the lower picture. When the treatment was begun the nasal spaces were constricted and inadequate for



FIG. 16.



good breathing. The nasal spaces have now become enlarged until they are practically normal. He is a perfectly good breather at the present time. Figs. 8 and 15 are photographs of casts of this case.



Figs. 16, 17 and 18. Another typical adenoid case. Observe from the casts the large expansion of the upper arch.



Figs. 19 and 20. Two other typical adenoid cases. In all the photographs the improvement in the general appearance of the child is shown. This improvement is due to the better development of the bones of the face.

3. The proper development of the bones of the face and nasal fossae is dependent more or less upon the normal occlusion of the teeth and their proper use in the act of mastication.

4. Orthodontic interference is advisable at the earliest possible time. That is to say, whenever a deformity in the maxillae

and dental arches is recognized, it should be treated, no matter what the age, in so far as is practical.

5. That the highest aim of the orthodontist is the establishment of normal occlusion in the permanent teeth, whether it has been accomplished by preventive methods in the young child or by more radical treatment in the older child.

6. Any nasal obstruction that causes permanent mouth breathing will interfere with the growth of the maxillae, produce a high vault and malformation of the alveolar process and dental arches. Mouth breathing will be cured only by the removal of the nasal obstruction and correction of the dental arches.

7. The nasal chambers will be enlarged by the proper expansion of the dental arch and the establishment of normal occlusion of the teeth.

*522 Rose Bldg.*

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### Suppuration of the Middle Ear With Some of its Complications.

By SECORD H. LARGE, M. D., Cleveland.

My purpose in bringing this subject before you this evening, is to impress upon you the importance of early interference in suppurative otitis media, or better still the prevention of this too common affection. A discharging ear is looked upon by the laity, and by some of our physicians I am sorry to say, as a very simple affair.

Pitt, Gruber and Barker found that in 57,000 autopsies, death was due in 334 from some one of the complications of suppurative otitis media; this makes 1 in 170. Macewen states that 90% of abscesses of the brain are due to suppuration of the middle ear.

A great number of these discharging ears could have been prevented if the physician had recognized and remedied the pathological conditions in the upper respiratory tract. Nearly all cases of otitis media can be traced to these causes, the most common being hypertrophy of the faucial and pharyngeal tonsils. In 150

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*Read before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, December 1, 1911.*



cases of chronic suppurative otitis media, 42 were caused by some pathological lesion in the upper respiratory tract. Cheattle examined 1,000 school children and found 335 with discharging ears, all had some nasal or postnasal affection.

Miller in 50 cases found 37 with pus in one or both ears. H. G. Sherman informs me that during this year 1,700 school children in Cleveland have been operated on for hypertrophy of the faucial or pharyngeal tonsils; he also says that in nearly all

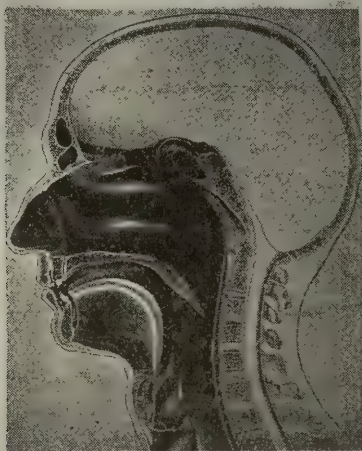


FIG. 1.



FIG. 2.

Fig. 1. Section showing opening of Eustachian tube with its relation to the nose and throat.

Fig. 2. Section showing ossicles in position. Note the very thin partition between the attic and the middle fossa of the brain.

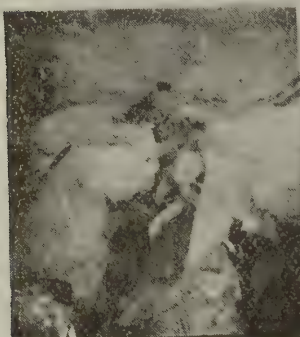


FIG. 3.



FIG. 4.

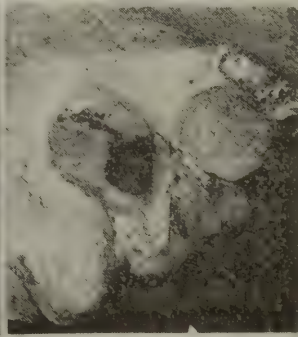


FIG. 5.

Fig. 3. Temporal bone in which the roof of the middle ear and antrum has been removed.

Fig. 4. Exenteration of the mastoid cells and opening into the antrum.

Fig. 5. Completed radical mastoid operation. The antrum, mastoid cells and middle ear have been thrown into one cavity.

of them there was disease of the middle ear. In the adult nearly all cases of suppuration can be traced to some affection of childhood; these cases were at one time acute, and from neglect, as a rule, developed into the chronic form. The hearing in these chronic cases becomes more and more impaired until it is practically nil. Time does not permit me to go fully into the complications, so the most important ones only will be mentioned, viz, mastoiditis, thrombosis of the lateral sinus, paralysis of the facial nerve, Betzold's abscess, Bright's disease, cranial complications such as abscess in the cerebrum and cerebellum, and the different forms of meningitis.

The time to treat these cases is before the otitis has developed, and here we must go back to the infant. The pediatricist by his modern methods has done much to lessen the frequency of this affection; in that the child is scientifically fed, clothed and, above all, receives the fresh air treatment. Neglect of these three fundamental principles, feeding, clothing and fresh air, causes much of our nose and throat troubles, especially hypertrophy of the pharyngeal and faucial tonsils.

The next step is the removal of all pathological lesions in the upper respiratory track.

In an acute otitis media the patient must be put to bed and a free incision made in the drum membrane as soon as there is the least bulging. Neglect to do this is often the cause of serious complications. A culture is very important as our treatment and prognosis depend greatly on the kind of infection. If it is due to streptococci and if there is the least tenderness over the mastoid or antrum, these latter must be opened at once on account of the dangerous complications which follow and the suddenness of their onset.

May I cite a case that came under my care: R. C., aged 18, the only son of a prominent Cleveland family, was operated on for adenoids. Two days following, he developed a follicular tonsillitis, with an acute otitis media. Paracentesis was immediately performed and a culture showed a streptococcus infection. Next day he developed pain over the antrum. Dr. J. M. Ingersoll saw him with me at noon and we decided to try the ice bag for a few hours. At 5 p. m. the same day I was called, as the patient had had a severe chill followed by a temperature of 105°. I had him taken to the hospital at once and opened the antrum and mastoid cells but found practically no pus. The following



morning he was feeling very comfortable, but that afternoon he developed pain down that side of the neck and the temperature went up to 104°. The diagnosis lay between a jugular thrombosis and Ludwig's angina, but as the lateral sinus had been examined and found to be healthy in appearance, we made the diagnosis of Ludwig's angina. At 10 p. m. we again operated and found an infection burrowing under the deep cervical fascia of the neck. Three counteropenings were made along the border of the sternocleidomastoid muscle; a very little serum was found but no pus. He was given antistreptococcus serum and made a very rapid recovery with normal hearing; but it left three very unsightly scars in the neck.

If a suppurative otitis media has lasted six weeks, when there has been a good free opening in the drum membrane, the antrum and mastoid cells should be opened. This can be done without injury to the ossicles, and if there is still a discharge after a month, or at the most six weeks, some one of the radical mastoid operations should be performed.

In 50 cases in which I have performed the radical mastoid operation for chronic suppurative otitis media and its complications, there were the following complications:

Extradural abscess	4 cases
Thrombosis of the lateral sinus	2 "
Meningitis	2 "
Suppurative labyrinthitis	2 "
Abscess of the temporosphenoidal lobe	2 "
Abscess of the cerebellum	1 "

There were two deaths, one from meningitis and the other from septic thrombosis of the lateral sinus. In the meningitis case operation was performed after the onset, and I might say that nearly all these cases are fatal, but surgical interference is practically our only therapy. In the case of thrombosis, the jugular vein was ligated but too late, and the patient died of septic pneumonia.

In the remaining 48 cases, except in two, the discharge has entirely ceased. In one of these two extirpation of the labyrinth was performed. The other one is under the care of Dr. P. A. Jacobs who has been using vaccines, and who reports that at the present time there is no pus, but at times a slight discharge of mucus.

## The Diagnosis of Acute Conditions of the Upper Abdomen.

By JOHN PHILLIPS, M. B., Ass't Prof. of Medicine, of Western Reserve University.

To correctly diagnose an acute condition of the upper abdomen requires a careful history and physical examination. Too much stress cannot be laid on the importance of the history for this alone will often give us an important clue to the existence of cholelithiasis, gastric or duodenal ulcer. The physical examination should include not only the abdomen but every other part of the body, for thoracic disease can simulate very closely disease of the abdominal viscera. Furthermore the patient should be examined from the neurological standpoint, as the gastric or hepatic crises of tabes can give rise to severe abdominal symptoms. In many cases too the examination of the gastric contents, feces, blood and urine may give important information. Many attacks of gall-stone colic are looked upon as "indigestion" until the finding of bile in the urine reveals the correct diagnosis. In many conditons the diagnosis is very simple, but often this is not true and the physician, when confronted with acute symptoms referable to the upper abdomen, must keep in mind the following conditions:

1. Disease of the gall-bladder and ducts—cholecystitis, cholelithiasis, catarrhal jaundice.
2. Appendicitis.
3. Diseases of the liver—liver abscess, hepatitis.
4. Diseases of the stomach and duodenum—acute dilatation, gastritis, perforation of gastric ulcer, stenosis of the pylorus; perforation of a duodenal ulcer.
5. Colitis.
6. Gastric or hepatic crises of tabes.
7. Hemorrhage into the pancreas or acute pancreatitis.
8. Intestinal obstruction from various causes.
9. Epigastric hernia.

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*Read before the Erie County Medical Society, at Sandusky, Ohio, July, 1911*



10. Hemorrhage into the suprarenals.
11. Lead colic.
12. Renal colic, pyelitis and ureteritis, Dietl's crises.
13. Arteriosclerosis of the abdominal vessels.
14. Thoracic disease—pneumonia, pleurisy, pericarditis, angina pectoris, caries of the thoracic vertebrae and conditions in the posterior mediastinum with irritation of the splanchnic nerves.

The symptoms of acute cholecystitis in some cases may be of such mild character that the condition is looked upon as indigestion. That cholecystitis occurs much more frequently than our clinical diagnoses would indicate is shown by the frequent finding at operation or autopsy of adhesions between the gall-bladder, stomach and colon. The most prominent symptoms of inflammation of the gall-bladder are pain and tenderness. The pain may be dull and continuous in character or it may be paroxysmal, resembling that of gall-stone colic. In some cases it may be referred towards the right iliac fossa, suggesting appendicitis. Two months ago I saw a woman, 43 years of age, whose appendix had been removed four years previously during the course of a pelvic operation, and whose gall-bladder at that time was found to be full of gall-stones, but they were not removed because the patient's condition was so serious. On the last occasion she had an attack of gall-stone colic with cholecystitis following, but all the pain was felt in the right iliac fossa, and here too there was very distinct tenderness, rigidity and muscle spasm. So marked was this, and the symptoms and physical signs in the region of the gall-bladder were so slight that if I had been unacquainted with the previous history of the patient I would have made a diagnosis of acute appendicitis. One should not forget that the two conditions, cholecystitis and appendicitis, may be present at the same time. As a rule there is tenderness with some rigidity in the region of the gall-bladder. The right rectus muscle in the upper part may be held so tense that it simulates a tumor. In cases where the inflammation is slight the tenderness can be best elicited by a sudden firm pressure over the ribs in the region of the gall-bladder. A very common tender point is at the junction of the upper two-thirds with the lower third of a line drawn from the ninth rib to the umbilicus. In a recent case the gall-bladder formed a large pear shaped tumor extending into the right iliac fossa, and in this

way simulated an appendiceal abscess, though its outlines were much more regular. If this condition has existed for some time the gall-bladder may be covered by an elongation of the liver, the so-called Riedel's lobe. The history and the finding of bile in the urine will frequently clear up the diagnosis. The temperature in cholecystitis varies as a rule with the severity of the inflammation.

In many cases the pain of gall-stone colic is so excruciating and so characteristic that the diagnosis is easily made, but this is not always the case. Ordinarily the pain is felt in the region of the gall-bladder, radiates to the back and right shoulder, or downward towards the umbilicus. I have seen one case where the severest pain was felt in the cardiac area simulating an angina pectoris. In another patient seen a year ago who had a severe attack of gall-stone colic followed by jaundice, the severe pain was felt in the left hypochondrium especially at the level of the sixth, seventh and eighth ribs just outside the nipple line. In both of these cases over 100 gall-stones were removed at operation. Many cases of so-called acute indigestion with belching of gas are in reality cases of mild gall-stone colic and the diagnosis will often be cleared up if the urine is examined routinely for bile after each attack. Cholecystitis often accompanies biliary colic, but the latter, when it exists alone, can be distinguished from the former by the greater severity of the pain, the absence of fever, leukocytosis and tumor. In cases of gall-stones associated with cholecystitis, perforation may occur with local or general peritonitis. Another complication that may arise in these cases is erosion of a blood vessel with fatal hemorrhage, as in a case I saw recently.

Usually the symptoms and physical signs in catarrhal jaundice are not marked. Occasionally there is quite severe vomiting at the outset and sometimes tenderness of the liver, but, beyond these, there is nothing suggesting an acute abdominal condition. These cases are often looked upon as indigestion until the finding of bile in the urine or the presence of jaundice reveals the error. In children especially one should keep in mind the fact that an acute catarrhal jaundice may be the beginning of an acute yellow atrophy of the liver.

Acute appendicitis may simulate acute conditions of the upper abdomen where in the course of development the appendix



has failed to descend so that it lies under the right lobe of the liver, where it is retrocecal in position or where it is unusually long and its free tip passes upwards towards the duodenum and pylorus. In a woman 39 years old, seen five months ago, who had suffered from acute attacks of pain at varying intervals for a period of four years, which were considered by myself and the other doctors who saw her to be due to gall-stone colic, the appendix, which showed marked evidence of chronic inflammation and a few recent adhesions, was found almost under the incision which was made to explore the gall-bladder. The gall-bladder and surrounding structures were normal. In cases where the appendix passes upwards behind the ascending colon, the pain may be felt above the umbilicus and well out into the flank, simulating pyelitis. Rigidity of the muscles and local tenderness is not felt at McBurney's point but just beneath the right costal margin and well out into the flank. These two conditions, however, may occur together. In a young woman seen by the writer last November, a colon bacillus infection of the right kidney coexisted with a gangrenous appendix; the latter at operation was found to lie behind the cecum. In cases where the tip of the appendix points upward, chronic inflammation of the organ may simulate a gastric or duodenal ulcer or gall-stones.

Acute hepatitis is rarely seen in this country but is not uncommon in the tropics. The symptoms are the same as in cases of congestion of the liver but the vomiting is more marked, the pain in the shoulder is more severe, and the temperature is raised. The upper part of the abdomen is rigid and the liver is enlarged and tender. If a perihepatitis is present the descent of the diaphragm is very painful.

Abscess of the liver may occur as the result of traumatism, penetrating wounds, extension of inflammation from surrounding parts, pyemia, or dysentery. Usually the right lobe of the liver is affected. There may be a single large abscess, or multiple small foci of suppuration. In rare cases abscess of the liver may give rise to no symptoms, the condition being discovered at autopsy. Usually the patient complains of general weakness, sweating, recurring chills and a feeling of fulness and tenderness in the right hypochondrium. In some cases there is considerable pain, either constant or intermittent, in the region of the liver and referred to the right shoulder. The temperature varies from normal in the morning to 103° or more in the

afternoon. Digestive disturbances in the form of vomiting, loss of appetite, and diarrhea are common. Loss of flesh is progressive. The patient lies on his back or on his right side because this position is more comfortable. In the majority of cases, jaundice of a mild degree is noted. The respirations are shallow because movement of the diaphragm causes pain. The lower lobe of the right lung is compressed, so that liver abscess may simulate pneumonia or empyema. The lower part of the right side of the chest and the upper part of the abdomen on the same side may show considerable bulging. Sometimes succussion associated with a great deal of pain can be elicited. The liver dulness in its upper part may be dome-shaped and extend as high as the third rib. If a perihepatitis is present friction can be felt over the liver.

The diagnosis in cases of amebic abscess may be confirmed by the finding of amebae in the stools or by puncture of the liver. In a colored man admitted to the medical wards of Lakeside Hospital in 1905, the abscess was easily demonstrated by puncture of the liver and later successfully treated surgically.

Acute dilatation of the stomach is such a serious condition that prompt recognition is very important to save the life of the patient. Conner in 1907 analyzed 102 cases of this condition and Laffer in 1908 was able to collect reports of 217 cases. This condition may be the result of debilitating conditions of a general character such as anemia, pneumonia, typhoid, or weakening of the walls of the stomach from previous gastric disease. It may follow injuries of the head and spine or blows upon the abdomen. Other cases occur as a sequel of abdominal operations. Probably the most common cause of this condition is mesenteric obstruction of the duodenum. The chief symptoms are profuse and persistent vomiting of large quantities of brownish fluid, pain in the epigastrium, abdominal distention and tenderness, great thirst, and rapid collapse. Inspection often shows the outlines of the distended stomach which disappear partly after vomiting. Percussion shows replacement of the gastric tympany by flatness. The most important diagnostic sign is the removal of excessive quantities of fluid by the stomach tube. Though a great deal has been written about acute dilatation of the stomach in adults, very meagre indeed are the reports of this condition in children. The youngest case mentioned by Conner was that



of a child three years of age. I believe that this condition is not so uncommon in children under two years of age and is one of the causes of sudden death. The following is the report of an illustrative case.

G. B., aged five months, breast fed for two months then given simple dilution of milk, for 24 hours had high temperature, was quite restless and had some vomiting and diarrhea. On the morning of Aug. 16, 1910, had a severe convulsion and following this went into collapse. I saw the child half an hour after the convulsion and the abdomen was greatly distended in its upper part. Passing a catheter into the stomach about 12 ounces of brownish fluid was removed. In the next three hours the stomach refilled so rapidly that lavage had to be performed ten times, when the secretion of fluid in the stomach lessened and although the baby was seriously ill for several days he eventually made a good recovery. Such a case as this emphasizes the importance of lavage of the stomach as a diagnostic and therapeutic measure in cases of acute abdominal distention.

Acute gastritis, whatever may be the cause, may give rise to very severe abdominal symptoms with marked prostration, pallor, pain in the epigastrium and severe vomiting. The appropriate correlation of the history and physical findings will usually make the diagnosis simple.

The first sign of perforation of a gastric or duodenal ulcer is severe pain in the epigastrium. This may follow the taking of a heavy meal or some strain such as vomiting or bodily exercise. As a rule the history is very important as the characteristic symptoms of ulcer of the stomach or duodenum can be obtained.

In a few cases perforation is not preceded by any symptoms of digestive disturbance. As stated above, pain is the earliest symptom and is referred to the epigastrium. Increase in respiration rate soon occurs and deep breathing causes pain. Severe prostration and collapse soon supervene. On physical examination the signs are those of a localized peritonitis of the upper abdomen, tenderness, rigidity of the recti muscles and diminished mobility. Later there is increasing distention with obliteration of the liver dulness, though the latter sign is unreliable. If the perforation has occurred on the posterior wall of the stomach, the pus collects in the lesser peritoneal cavity,

adhesions may close off the foramen of Winslow, and in that way prevent a general peritonitis.

Acute colitis often gives rise to very severe pain in the upper abdomen with extreme tenderness and rigidity of the abdominal muscles. The colicky nature of the pain, the severe tenesmus with the frequent bowel movements containing mucus and sometimes blood, the fact that there is usually marked tenderness in the region of the cecum and the sigmoid flexure of the colon will serve to establish a correct diagnosis.

In tabes, gastric crises are not uncommon. In these attacks the patient suddenly suffers from severe vomiting, projectile in character and often unassociated with nausea. The pain is usually quite severe, and is often girdle-like in character. The vomitus first contains food, then clear fluid and finally bile. There is often great prostration with faintness, vertigo and a rapid feeble pulse. The attacks last for hours or for several days and return at irregular intervals. Usually the inactive pupils and loss of reflexes give a clue to the cause of the vomiting but in a few cases the gastric crises occur before the loss of tendon reflexes can be detected and the diagnosis from acute abdominal conditions may be very difficult indeed.

Acute hemorrhagic pancreatitis is a disease seldom diagnosed during life, the diagnosis in the majority of cases being that of intestinal obstruction. One of the most characteristic features is the suddenness of the onset, with excruciating pain due no doubt to the swelling and infiltration of the pancreas involving the semilunar ganglia. Nausea and severe vomiting occur, and these are associated with symptoms of collapse. Sometimes there is a chill and following this the temperature rises often to 104° or 105°. There are signs of a local peritonitis in the upper part of the abdomen and occasionally a tumor can be felt above the umbilicus, though this is usually obscured by the rigidity of the recti muscles. Fitz says that acute pancreatitis is to be suspected when a previously healthy person or a sufferer from occasional attacks of indigestion is suddenly seized with a violent pain in the epigastrium followed by vomiting and collapse, and in the course of 24 hours by a circumscribed epigastric swelling, tympanitic or resistant, with slight elevation of temperature. Circumscribed tenderness in the course of the pancreas and tender spots throughout the abdomen are valuable diagnostic signs.



In the diagnosis of acute conditions of the upper abdomen, the various causes of intestinal obstruction must also be considered. It is impossible in the limits of this paper to describe in detail the symptoms and the differential diagnosis of intestinal obstruction. The various causes of this condition may be classified as follows: (a) Obstruction of the lumen of the bowel from masses of fecal matter, gall-stones, intestinal concretions and parasites, foreign bodies such as fruit stones and masses of vegetables or animal fibers or hairs. (b) Disease of the wall of the bowel, as in simple cicatricial stenosis following a syphilitic or tuberculous ulceration, or where tumors, either simple or malignant, involve the wall of the bowel. (c) Compression of the bowel from tumors of neighboring organs. (d) Strangulation from bands of adhesions, vitelline remains, omental or mesenteric slits, peritoneal pouches, and the incarceration of internal herniae. Among the latter may be mentioned the diaphragmatic herniae, hernia of the foramen of Winslow, hernia of the intersigmoid recess, of the paracecal peritoneal pockets, of the duodenojejunal and duodenal recess (the so-called Treitz's hernia). (e) Volvulus. (f) Intussusception. In regard to intussusception I think it is necessary to emphasize the importance of the history in diagnosis. This is especially true in cases of intussusception in children. A healthy child at play may suddenly scream with pain and turn and twist in agony so that the mother will say that she knows something dreadful has happened. The pain may keep up continuously or it may subside to recur again in a few minutes or hours. In an enema is given some mucus and blood returns with the stool. On careful examination, if necessary under an anesthetic, the characteristic tumor may be made out. Rectal examination should never be omitted in this or any other abdominal condition. Cases of chronic intussusception sometimes occur and the diagnosis here can often be made from the fact that the tumor changes its form from day to day.

Epigastric hernia is not infrequent. In the past two years I have met with 20 cases out of a total of approximately 6000 cases treated at the Medical Department of the Dispensary of Western Reserve University and Lakeside Hospital. They are usually small herniae of the omentum situated above the umbilicus slightly to one side of the median line and form a small

tumor, varying in size from a cherry to a walnut. Occasionally they are very large. In one of my cases, the hernia was as large as an orange but caused no inconvenience. The usual symptoms complained of are pain, often of a dragging character, and nausea and vomiting. These herniae may become acutely inflamed, as in one patient whose feet slipped while he was cranking his automobile and the crank struck him in the epigastrium. The inflammation of the hernia that resulted made operation necessary.

Quite a number of cases of hemorrhage into the adrenals have been described. Death usually occurs within 48 hours. The most characteristic symptoms are sudden pain in the upper part of the abdomen, fever, vomiting, convulsions and diarrhea. The abdomen early shows marked rigidity with increasing distention. The patient almost from the onset shows signs of collapse.

With the increase in the manufacture of automobiles and lead batteries, cases of lead poisoning are seen almost daily in all large hospital clinics. The abdominal symptoms in these cases may closely simulate a general peritonitis or local inflammatory conditions such as acute appendicitis or cholecystitis. Twice within the past year I have seen patients operated upon for acute appendicitis with no relief from the pain in the abdomen, when the true condition was lead colic. It is very important therefore in any case of abdominal pain to question the patient carefully in regard to his occupation and to never forget to look for the "lead line" on the gums.

In renal colic pain of extreme violence is felt in the lumbar region of the affected side. The pain is associated with muscle spasm which causes the patient to double up and frequently to get on his hands and knees. The pain radiates downwards and inward towards the groin and the scrotum and testicle, causing marked retraction of the latter. Sometimes there is vesical irritability with frequency of urination. There may be severe systemic depression with chills, fever, rapid pulse, pallor, and vomiting. During and after an attack red blood cells can be found in the urine. An x-ray examination will usually confirm the diagnosis.

Pyelitis, the most common cause of which is colon bacillus infection, is not uncommon in the female sex, and is occasionally seen in the male. The most important symptoms are chill asso-



ciated with dull pain and tenderness in the region of the kidneys. Fever, malaise, sweats and digestive disturbances are constantly present. The careful examination of the urine with the finding of pus and bacteria will clear up the diagnosis. In this connection it should be emphasized that pyelitis is a very common cause of unexplained high temperature in girl babies. The diagnosis can always be made if one remembers to use a catheter. In children the symptoms sometimes suggest an involvement of the meninges as the child will often lie in a stupor with slight rigidity of the neck muscles. Twice during the past year I have seen in consultation babies, in whom the diagnosis of meningitis was considered because of the stupor and high temperature and catheterization revealed a urine containing a great deal of pus which soon disappeared with the use of urotropin. Associated with pyelitis there is sometimes a ureteritis with tenderness along the course of the ureter.

In floating kidney, Dietl in 1864 described attacks characterized by severe abdominal pain, chills, nausea, vomiting, fear and collapse. These attacks may be mistaken for renal colic or appendicitis.

Of recent years much attention has been paid to painful gastric and intestinal conditions which are supposed to be associated with spasm of the gastric and mesenteric vessels. The pain in these cases is often worse at night so that the patients may always go to bed with a hot water bottle on the abdomen and the condition is sometimes associated with nausea, vomiting and meteorismus. Sometimes in these cases thrombosis of the mesenteric vessels occurs with symptoms of intestinal obstruction.

Every clinician is familiar with the fact that in pneumonia, pleurisy and pericarditis the pain is often referred to the abdomen. This is particularly true of pneumonia associated with a diaphragmatic pleurisy and numerous cases have been recorded where these cases have been operated on, the diagnosis of appendicitis having been made. In angina pectoris, too, the pain is sometimes referred to the abdomen. In caries of the thoracic vertebrae below the sixth, or in aneurysm of the lower part of the descending aorta intense pain and rigidity may be felt in the abdomen. In the following case of rupture of the descend-

ing thoracic aorta the symptoms and physical signs suggested acute general peritonitis.

W. R., aged 73, was brought into Lakeside Hospital, April 5, 1906, in a moribund condition. Only an incomplete history could be obtained from his friends. He had always enjoyed good health although he had been a very heavy drinker. The morning of admission, after a drinking bout of three or four days, he was seized with a severe pain in the epigastrium. He went to a neighboring drug store and got some medicine which gave him some relief. At 10 a. m. he saw a doctor who gave him some calomel and castor oil. His pain continued throughout the afternoon and he became progressively weaker. At 7 p. m. his doctor visited him and found him in collapse, so he at once sent him to the hospital. On admission he was very pale and bathed in cold perspiration. His temperature was 95.8° F., respiration 22 and his pulse could not be felt. Nothing abnormal was made out in the chest except dulness and diminished breath sounds on the left side below the angle of the scapula. His abdomen was slightly distended and showed extreme rigidity. At autopsy a large rent was found in the ventral surface of the aorta beginning at the line of the diaphragm and extending 16.5 cm. upwards. At the apex of the rent which involved the entire thickness of the artery, there was a splitting of the intima from the media up to the origin of the left subclavian artery and the cleft was filled with recent clot. The posterior mediastinum was filled with recently clotted blood and there was about 23 ounces of blood in the left pleural cavity. The pain in this case was referred to the abdomen, this undoubtedly being due to the irritation of the splanchnic nerves.

3849 Prospect Ave.

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### The Pharmacopeia From a Therapeutic Standpoint.

By M. J. LICHTY, M. D., Cleveland.

I wish to express my appreciation of the honor which the program committee has conferred upon me by asking me to give a few remarks in discussion of the remedies of the new pharmacopeia from a therapeutic standpoint. I am sure if the committee had regarded me as a therapeutic nihilist, or an unwarranted

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*Read before the Medico-Pharmaceutical Section of the Academy of Medicine of Cleveland, October 27, 1911.*



enthusiast over the efficacy of drugs they would not have given me this privilege.

It is a subject which concerns, and should be considered by every practitioner of medicine. What drugs are of any therapeutic value and what drugs should be used? Naturally there are very few, if any, physicians who can give the best estimate of all these preparations, which are prepared for almost all kinds of sickness to be treated by all kinds of physicians and diagnosticians everywhere.

The advice of Hamlet to the players—"Suit the action to the word, and the word to the action," is a good statement to apply here. In other words make it practical. You will remember also that Hamlet had no respect for the opinion of the "groundlings," a type of which is even found in our profession.

But to diagnose the condition and suit the remedy to the disease is of the utmost importance. Diagnosis without treatment, on the one hand, may be useless; while on the other hand treatment, or prescription of drugs, without diagnosis may be ineffectual, or even fatal.

In looking over the list of official drugs and remedies and their various preparations I see there has been some elimination of old remedies the efficacy of which has been questioned by both pharmacologists and physicians. It is to be regretted that medicine, or the therapeutics of it, is not an exact science. At the same time it is a matter of greater regret that the wildest empiricism often prevails where much scientific knowledge might be applied.

Many of you will remember the address by Prof. Hobert A. Hare before the Ohio State Medical Society last May on the subject "A Timely Warning." Though a pharmacologist himself he could not condemn practical knowledge gained by empiricism, and though a clinician, an internist, a therapist he could not endorse all the conclusions of the pharmacologist with his scientific acumen. What the therapist and, above all, the patient wants is results, no matter what was the prevailing opinion or recognition of the remedy.

No pharmacopeia could ever recognize or endorse all the remedial agencies in demand, no matter how ethical they are in preparation and composition. While some physicians claim to get great results from certain old or even new remedies, other physicians, of perhaps keener judgment and greater experience, know

that these men are mistaken, and that their conclusions are not trustworthy; on the other hand no set of men is exceedingly willing to recommend some of the very latest remedies, some proprietary, others secret and under patent, no matter how efficacious or trustworthy they may be.

When these newer remedies are thoroughly tested, and the patent expires and the secret of composition is revealed then they will receive merited recognition. At the same time the pharmacologist must not blame the therapist for prescribing that which science or experience convinces him to be good, no matter how ethical or unethical the remedy may be.

Consequently it may be questionable whether it is wise to eliminate some of the older, rarer, and less scientifically potent, remedies which may be prescribed from time to time for certain reasons by a few physicians. Some of these standard preparations, though scientifically useless, are, perhaps, just as emphatically harmless.

In defense of the use of some of the newer remedies called proprietary or even, perhaps, under patent, let me remind you that if tuberculin, aspirin, acetanilid and phenacetin had never been prescribed and recognized as agencies of considerable merit, they would not appear in the pharmacopeia today.

Returning now to the rational use of many of the remedies endorsed by the pharmacologists and compilers of the pharmacopeia, I will say that here the internist, or more especially the general practitioner, sins most. Many of our most valuable remedies, proved scientifically to be of great value under certain conditions, are improperly, unnecessarily, and even harmfully, prescribed after an erroneous diagnosis.

Dame Nature often fails to get credit for what an inert, harmless or slightly harmful remedy is supposed to have accomplished. A specific for every form of disease would, of course, be ideal, but unfortunately there are but few recognized specifics. And when a physician comes to feel that he has many potent remedies for as many ills he will soon find himself (if not an ignoramus) greatly in error.

How often do we find that our remedies prescribed are not at all suited to the condition which eventually is recognized to be the very opposite of that which was supposed to exist. Alas too frequently quinin is prescribed for the supposed chills of malaria when a pelvic abscess, or tuberculous state has been unrecognized.



How often are *nux vomica*, hydrochloric acid and pepsin prescribed in gastric disturbances where the gastric secretion is already hyperacid. Too frequently expectorants and cough mixtures are prescribed when a renal or cardiac insufficiency has not been diagnosed. An endless number of remedies for headache are prescribed daily when these headaches are the result of an unrecognized error of refraction, a cholecystitis, an appendicitis, a pelvic disorder, a lithemia or a cardiovascular disturbance.

It is not necessary or possible to refer to many individual drugs and their preparations. But in passing I see that of digitalis only two preparations are recommended, the infusion and the tincture. I am sure there is much reason for this. At the same time I am also sure that there is much difference in the potency of these preparations as they are prepared by pharmacists and by some of the bigger manufacturers of drugs. It seems to me that some infusions as prepared by druggists in this city seem to act better than those of others. Mulford's digitol, Squibb's fat-free tincture and the standardized tincture of Park Davis & Co., all seem to have special merit, if one reads the literature of these various firms; and occasionally it has appeared to me that one or the other of these preparations has given better results in a certain case than either of the other two. But just as surely have I seen cases in which none of these tinctures were tolerated by the patient or had any influence upon the disease, and then if some newer (more proprietary) preparation, such as digalen or digipuratum, was prescribed a favorable effect could soon be noticed.

While the hypodermic use of digitalin has always been disappointing to me, there are other physicians who believe they have had favorable results quickly. It is a question therefore whether this alkaloid, a standard preparation, should be unrecognized. And it is just as much a question whether digalen and digipuratum (if my observations are worth anything at all) should not be recognized as soon as possible.

While cacodylate of soda is a remedy considered by many as of little value I should be sorry to do without it in some cases. This remedy has gained recognition; but I doubt whether it has ever been tested as scientifically and therapeutically as salvarsan, which at present seems to be of inestimable value and in extensive use.

In this discussion I would not be misunderstood; and I must

express my hearty approval of the effort being made by those who are revising the pharmacopeia in their efforts to eradicate many old remedies which are useless and should be forgotten. I also endorse most heartily the attempt being made to discourage the use of the all too numerous combinations of remedies and compounds. When compounds are prescribed indiscriminately the case is too often diagnosed to fit the remedy, rather than the remedy prescribed to fit the diagnosis. Shot gun prescriptions are pretty good evidence of uncertain diagnosis.

I am sure no one has greater contempt for patent medicines advertised to the public, and even the great bulk of proprietary articles sampled to the physician, than I have. The graft in politics is often small when compared to the graft and fraud of patent medicines; and the fact that such graft and fraud exist is a reflection upon the intelligence of the public, as well as an evidence of the great helplessness of our medical organizations to successfully influence legislation for its proper regulation or ultimate termination.

I know I have not held closely to the subject, but hope I have expressed myself clearly in favoring the use of any remedy which is standard and therefore recognized by the pharmacopeia, and even of some remedies not yet recognized but which are proved to be efficacious.

1803 E. 82d Street.

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### Acidosis.

By C. H. LENHART, M. D., Cleveland.

The term acidosis refers to several conditions, the confusion of which has led to much misunderstanding. It has been used to designate an excretion of the acids of the acetone series or of other known or unknown acids in the urine, the latter, i. e. the unknown acids being suspected on account of the increased ammonia or alkali excretion. Acidosis has been used to denote the accumulation within the body of the acetone bodies or of other acids. Finally, it has been used as a term to express the conception of an acid intoxication, due to the acid properties of the substance involved, that is, the substance poisons because it is an acid, because it occurs free as an acid,

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*Read before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, November 3, 1911.*



at least partly uncombined with a base, and not because of any specific property it may have. The only acids which have been proved to be capable of causing an acid intoxication in the body are those of the acetone series, beta-oxybutyric acid and diacetic acid. Lactic acid is the only other acid for which any pretended proof has been brought forward; the grounds in its case are very unstable. We shall confine ourselves to the acids of the acetone series. Do these acids accumulate in sufficient amount within the body to cause an intoxication, i. e., produce symptoms, and do they accumulate in sufficient amount to overcome the enormous neutralizing functions of the body fluids, and intoxicate because they occur as free acids? It goes without saying that the mere detection of these bodies in the urine, even in increased amount, does not necessarily indicate an accumulation of them within the organism. As acetone is a normal constituent of the urine, and as beta-oxybutyric acid at least is an obligative step in intermediary metabolism, the importance of emphasizing the difference between their detection and the proof of their accumulation becomes evident.

We shall consider two main types of pathological complexes in which the theory of acidosis has been called upon to explain the major symptoms. The first is the type occurring in diabetic coma. Here it does seem proved that acidosis plays a very important role. The second type we may call the liver type. It has its experimental basis in the study of dogs with Eck's fistula, and clinically appears in such conditions as eclampsia, delayed chloroform poisoning, etc. Some increase in the excretion of the acetone bodies is to be made out in these cases, but it has never been proved that these or other acids accumulate within the body in sufficient amounts to be the major primary cause of the symptoms. In addition to these two main types there is the additional, really physiological type, where is seen an excretion of acetone bodies when the diet is low in carbohydrates. This factor has its influence on the two main pathological types, and also in other conditions where there is neither glycosuria nor morphological change in the liver.

*The diabetic type:* As regards its experimental basis, Walter in 1877 studied the effect of mineral acids on the animal organism. He administered to rabbits, by mouth, hydrochloric acid, and found that a total dose of 0.9 gms. given within 24

hrs. was constantly fatal. The animals presented at first an accelerated respiration, later it was slow and deep, accompanied by loss of power of locomotion and collapse. The blood was alkaline to litmus and was low with respect to its  $\text{CO}_2$  content. The symptoms and death could be prevented by the intravenous injection of sodium carbonate. In dogs he was not able to get toxic symptoms by giving acid, but he found a great increase in the urinary ammonia excretion. He concluded that the symptoms arise from the withdrawal of alkali from the body, and that the carnivora are protected from this by neutralizing the acid with ammonia deviated from its normal conversion into urea. It has since been shown that rabbits can be protected to a certain extent by being fed on a high protein diet. Walter was not able to get like results on the administration of organic acids. Spiro found the blood less alkaline to titration. Szili found a decrease in the hydroxyl concentration of 95% i. e., a decrease in alkalinity in terms of physical chemistry. From this experimental work arose the theory that the reduction of alkalis of the blood led to a decrease in the ability of the blood to carry  $\text{CO}_2$ , hence there was an accumulation of  $\text{CO}_2$  in the tissues—this accumulation of  $\text{CO}_2$  in the respiratory center caused the augmentation of the respiratory movements, and that the whole picture was one of death by asphyxia.

On the clinical side, Kussmaul, in 1874, reported three cases of diabetes presenting a peculiar form of coma. The distinguishing features were: (1) Dyspnea of a characteristic sort, not resembling any of the usual forms. The respiratory movements were deep and free. There was no hindrance to the inflow and outflow of air. The chest expanded in all directions, with no drawing in of the sternum or the intercostal spaces. The vesicular murmur could be heard in all parts of the lungs. Yet in spite of this apparent freedom and depth of respiration there was the greatest air hunger—the patients complained of it, one could see the exaggerated play of the respiratory muscles, and hear the loud murmur over the larynx. The veins of the neck were not distended, showing that the blood easily entered the thorax. The respiratory movements were increased to from 30 to 40 and were regular. There was no orthopnea—the patients were too weak to sit up. (2) The heart was increased in rate to 120 to 140, was weak, but regular. (3) The patients were



greatly excited, tossed about, cried out and complained of epigastric pain. (4) A few hours after the beginning of the dyspnea the patients became comatose, and remained thus till death. During the coma the dyspnea continued. (5) Absence of cyanosis. Kussmaul concluded that the dyspnea was due to a direct stimulation of the respiratory center by some poisonous product of the disease, that it could not be due to oxygen deficiency, nor to carbon dioxide increase in the blood, nor to acetone poisoning.

In 1880 Hallervorden discovered in diabetic urine a high amount of excreted ammonia. In 1883 von Jaksch demonstrated diacetic acid in such urine, Kaulich having demonstrated acetone in 1860. Stadelmann in 1883 studied ten cases of diabetes, especially as to the ammonia content in the urine. This he found high, much more so than was necessary to neutralize the inorganic acids of the urine. He concluded that there must be some unknown organic acid present, which he proceeded to find. He isolated what he thought was crotonic acid, but which Külz and Minkowsky later showed to be beta-oxybutyric acid. Stadelman also found a decrease in the  $\text{CO}_2$  of the venous blood, and a decrease of alkali of the blood by titration. He propounded the theory of acid intoxication as the cause of the symptoms in diabetic coma and proposed its treatment with sodium carbonate. The similarity of the clinical condition to that in the rabbit was apparent—acid was present, but was it present in amounts at all comparable to the amount of  $\text{HCl}$  in the experiments of Walter? This Magnus Levy answered by analysing the blood, liver, muscle and other tissues of patients dead of diabetic coma and finding quantities of beta-oxybutyric acid amounting to 100 to 200 gms., which calculated for a gm. of body weight were as large or larger than the amount of  $\text{HCl}$  in the rabbits of Walter. Finally this was corroborated by the finding of enormous amounts (160 gms. in a 30 kg. boy in 24 hrs.) of the acetone bodies excreted in the urine after recovery from coma.

That there is a close analogy between the experimental and the clinical condition I think every one will admit, i. e. as regards amount of acid present, increased ammonia excretion, decreased  $\text{CO}_2$  content of the blood with no considerable decrease in O content, decrease in bases of the blood, in the respiratory and nervous symptoms and the final termination in death. In

experimental acid poisoning the proof that death is due to the acidity, as such, is the efficiency of treatment by alkali. In diabetic coma such therapy is only seldom completely efficient. Magnus Levy, who upholds the theory that the two conditions are essentially identical in nature, has had only three completely successful cases. He admits its relative inefficiency, but explains it in the following way. In the case of the rabbit there is introduced in a certain limited time a definite amount of acid, which may be neutralized by one sufficient dose of alkali—then the danger is over. But in diabetic coma acids are being continuously formed in immense amounts. To neutralize 150 gms. of beta-oxybutyric acid formed in 24 hours, one must give 120 gms. of soda bicarbonate, and keep it up every 24 hours—for the soda will not lessen the production of acid. Only if the amount of acid formed is decreased, or if there is an increase in oxidation of the acid will the case be cured. This explains the failure of the therapy, but does not controvert the theory.

There are those who admit that the acetone bodies are the cause of diabetic coma, but not because of their acidity, but through some specific drug action. They explain the efficiency of the alkaline therapy on the basis of its diuretic effect, i. e. that the acetone bodies are increasingly excreted as the amount of alkali administered is increased. I confess that the experiments of which I have read in this connection do not, to my mind, point to such a specific drug action. And further, why, if the action is specific, should coma be so long delayed, knowing as we do that there may be, and very often is, a large production and accumulation of these bodies, extending over months and years? I think, at least provisionally, we must conclude that the coma is due to the acid nature of these substances.

If it be the acid properties of these substances which are the cause of the coma, then we might conceive of their acting in two ways: (1) Their neutralization and excretion over a long period of time might lead to an impoverishment of the body of its alkali. There is no proof that such a condition occurs. The alkali of the bones especially must be for this purpose practically inexhaustible—at any rate no one has furnished good proof of morphological changes in the bones in any way analogous to those of rickets, osteomalacia, etc., and Ewing was not able to detect any change in the bones of rabbits fed HCl



over a considerable time. It has been commonly suggested that through loss of alkali the blood is no longer able to carry away from the tissues the  $\text{CO}_2$  in sufficient amount to prevent their asphyxia—and that it is this excess of  $\text{CO}_2$  in the respiratory center, which stimulates the center—thus presenting the picture of a severe dyspnea without cyanosis. It is true that there is less alkali in the blood, as well as a very low amount of  $\text{CO}_2$ , but the low  $\text{CO}_2$  is not low because there is little alkali to carry it. Beddard, Pembrey and Spriggs proved this by showing that the venous blood of diabetics was able to take up a considerable amount of  $\text{CO}_2$ . The  $\text{CO}_2$  of the tissues is not increased, because they found the  $\text{CO}_2$  tension of the venous blood to be normal or below normal. They explain the findings in coma by the fact that a primary stimulation of the respiratory center takes place (not by the  $\text{CO}_2$ ) and the exaggerated respiratory movements wash out, as it were, the  $\text{CO}_2$  from the blood. Thus they make  $\text{CO}_2$ , not responsible for the disease picture, but a part of the picture secondary to some primary cause. Their position seems worthy of adoption.

Having concluded that the symptom complex is not due to a drug action of the acetone bodies, nor to a loss of alkali with subsequent asphyxia by  $\text{CO}_2$ , there remains left what seems to me to be the most logical explanation. That is, the acetone bodies do not act, at least in the sense of producing symptoms of any magnitude, until such time as they are no longer fully neutralized, that is, coma appears when these bodies appear, at least to some slight extent, as free acid; and it is by virtue of their being able to exert their functions as acids that they produce the coma with its attendant symptoms. It is the increase of the free hydrogen ions in the respiratory center which stimulates this center. This in turn, by increasing the respiratory movements, lowers the  $\text{CO}_2$  content of the blood, and gives the clinical picture of a dyspnea without cyanosis. It is the same factor in the other nervous centers that first stimulates, then paralyzes—for the tissues of the body are remarkably susceptible to change in their condition of acidity and alkalinity. The body possesses very efficient means of maintaining practical neutrality; that is why these patients may live so long, even with a large accumulation of acid. Physical chemistry objects that it has never been able to detect a true acidity of the blood.

Biology rejoins that it has more delicate tests of its own. An amount of muscular exercise sufficient to produce enough lactic acid to greatly stimulate the respiratory center may show no detectable change in the hydrogen ion concentration of the blood. We can believe in acidosis in spite of physical chemistry.

Such being our conception of the condition under consideration, we must next consider the origin and formation, etc., of the acetone bodies.

There are two sources of the acetone bodies—certain fatty acids and certain aminoacid constituents of the proteins. The acetone is probably largely formed from the diacetic acid after its (the latter's) excretion. Hence we really have only to do with two acids—the beta-oxybutyric and the diacetic. The oxybutyric acid is probably an obligate product of intermediary metabolism, that is the fatty acid all passes through this stage as it is oxidized to  $\text{CO}_2$  and water. According to the newer work the diacetic acid is not an obligative product of metabolism, but appears when there is a hitch in the oxidation of the oxybutyric acid. The relation between the two is a reversible one in the sense of physical chemistry and the two are excreted in a certain approximate proportion to each other.

Why do they accumulate in acidosis? Because there is a hitch in the oxidation of the oxybutyric acid. Why the hitch? We do not know. But we do know that they always tend to accumulate when, and only when, there is a lack of carbohydrate intake, absolute or relative, or an inability on the part of the body to use the carbohydrate that is taken in. Thus the normal slight excretion of these bodies is exceeded in starvation, cyclic vomiting of children, cancer, certain gastro-intestinal disturbances, fevers, as well as in diabetes. But probably in no condition does their accumulation reach such a degree as to be able to produce symptoms, except in the case of diabetes. Acidosis in the sense of an accumulation within the body of the acetone bodies occurs in many conditions. Acidosis in the sense of an acid intoxication occurs probably only in diabetes. In diabetes the patients may live for months and years with an accumulation of these bodies, but without an acid intoxication. It is only when their accumulation reaches a certain stage that they become alarming.



The normal mechanism of protection is ammonia formation. The body has at any time 6 to 8 gms. of ammonia at its disposal, which will neutralize 40 to 50 gms. of oxybutyric acid. Fatal acid intoxication will occur only when this amount is greatly exceeded.

Therapy. How can we lessen the accumulation of these bodies? We can give alkalis, and increase their excretion. We avoid butter, or we may give washed butter—for butter contains butyric acid or its glycerole, which gives rise to increased formation of the acetone bodies.

We need not avoid fats. Fat metabolism, like the intake of O does not depend upon the supply but upon the demand of the cells. If this demand is not met, the cells will use stored body fat—if the supply is more than met, the excess of fat will be stored as body fat. It has never been proved that an increase in the intake of fat has increased the formation of acetone bodies.

As oxybutyric acid is oxidized better in proportion as there is better oxidation of carbohydrate, the endeavor should be made to raise the patients tolerance for the latter, by the usual means. By giving alkalis when we temporarily reduce the carbohydrates we lessen the danger of precipitating coma, which danger is by no means as great as has been thought.

If coma does appear, then give alkalis in enormous doses. Oxygen inhalations seem to be useless. Attempts at finding other substances besides carbohydrates, and possibly alcohol, which would decrease or prevent the accumulation of these bodies have been unsuccessful or impracticable.

*The liver type:* The experimental basis lies in certain work done on dogs with Eck's fistula, i. e. a communication between the portal vein and the inferior vena cava. The urine of these dogs shows a decrease of the urea and an increase of ammonia and carbamic acid—the two latter have been shown to be present in large amount in the blood also. The alkali of the blood is probably not diminished, nor the  $\text{CO}_2$ . There is no abstraction of alkali from the body. Symptomatically they present vomiting, thirst, somnolence, coma convulsions and death in most cases. They do not show the characteristic dyspnea of the mineral acid poisoning cases. Now and then a dog recovers, and a collateral circulation to the liver is established. In these cases the feed-

ing of meat will bring on an acute attack resembling that of the dogs that primarily died.

Clinically in cases other than diabetes, notably delayed chloroform poisoning, pernicious vomiting of pregnancy and puerperal eclampsia, grave lytic changes take place in the liver. They resemble the experimental liver type in that there is great increase in the ammonia excretion, with decrease of the urea. Also they often show an increased secretion of the acetone bodies. Upon this fact and the behavior of the ammonia the theory of acidosis has been applied to these cases. There is an acidosis in the sense of increased acid production and excretion, but the amounts of acid demonstrated have never been enough to produce a real acid intoxication, in the sense we have used the term. Nor do we see the typical respiration analogous to that of diabetic coma.

The appearance of acetone bodies in these and other clinical types rests on several factors. First there is often a decrease in carbohydrate intake with the food, e. g. we generally starve our surgical cases for a time; in the cyclic vomiting of children the excessive vomiting precludes the taking of nourishment for several days. Another factor is that the intake may be relatively low, in that the demands on the part of the organism are increased, e. g. in eclampsia the convulsions increase the consumption of carbohydrate and must even exhaust it in bad cases. Finally in the cases where there is destruction of liver, there must be gross changes, both qualitative and quantitative in the conversion of the carbohydrate.

7315 *Detroit Ave.*

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## Treatment of Stuttering and Stammering and Voice Defects Through the Science and Art of Speech and Singing.

By BERNARD CADWALLADER.

"Speech at its best is an art. It never need be less than a science."

I use the double terms, stuttering and stammering, advisedly. Both must be used to distinguish the different classifications of defect. Some persons have trouble only with vowels, others only with consonants, or combinations of consonants,



while others have trouble with everything. How are we as speech specialists to deal with and treat these varying and various conditions if we say they do not differ, that one is the same as the other and should be called by the same name or classification?

By educating a pupil to recognize from the beginning, the difference between the two forms of speech defect, I can more surely, more quickly, more intelligently, correct the defect as he demonstrates it, by referring to his clutched, cramped, laryngeal condition in labored vowel repetitions as stuttering, distinctly a laryngeal action: and to his labored consonantal escapades, repetitions and mumblings, as stammering, a lip and tongue action, showing which particular classification he has butchered. It helps the victim to locate the seat of the trouble more quickly and to analyze his own faulty method of speech production. The cause of the peculiar defective vowel action is altogether different from the cause of defective consonantal production. The differentiation is necessary to familiarize the pupil's mind with his own condition more clearly and scientifically.

Some authorities think these two words in English mean exactly the same thing, that the word stammer is superfluous and should be avoided because it leads to confusion with the German word "Stammeln" lisping, and not stuttering. To my mind this is very indefinite and a begging of the question. What is lisping but a defective tongue action (I except all surgical and dental cases). It is distinctly a consonantal defect which would come under my specific classification of stammering, including all difficulties with all consonants. Stuttering embraces all trouble with vowels or words beginning with vowels and is eliminated through perfect control and stronger action of the stroke of the glottis, so making easy, clean-cut, artistic vowel sounds in enunciation and diction.

We therefore designate an individual as a stammerer, a stutterer, or both, if we use the terms intelligently and recognize the need. We must have two distinct terms to designate two defective conditions, each requiring different treatment to eliminate. I should be glad to prove my position by illustrations, perhaps unnecessary at this time, even though dictionaries say

both are the same. Dictionaries do not lead, they but follow.

The justification for incorporating into speech treatment the principles of the science and art of singing is self-evident. The conditions of the speech apparatus of the stutterer and stammerer are exactly opposite those of the trained singer. He has no control through the mind of the speech organs and the energy invested in them, the great cause of his affliction, as is evidenced by his inability to get his words out, also by the continuous repetitions of consonants, consonantal combinations and vowels, a physical defect.

Lalaphobia or fear of stuttering and lack of confidence in one's self, the greatest foe to perfect speech, is mental. Our speech to be free must be placed upon the same effortless, artistic plane and control as that used by the great singers, combined with principles of perfect legato or binding together of words in the phrase to overcome the abruptness or awkwardness of interchange of consonants.

The value of reading aloud is an educational factor. The habits of using these principles are fixed through use in reading aloud, for if one can not read without defect while the mind is concentrated on the matter he can not speak freely when the attention is diverted. Therefore it is the knowledge of what to do and how to do it that saves the stutterer and stammerer from confusion and excitement, humiliation and defeat. Afterward are added principles of inflection, natural accents of words, and mind measurement of phrases.

Mind measurement, which I use for want of a better term, is a very important factor in speech redemption. Short phrases prevent crowding of words and confusion (mental), clutching and repeating (physical), custom and habit are as difficult to fight as disease.

What phase of pedagogy is compelled to change the habits of from five to fifty years standing, daily, hourly, becoming more firmly fixed? Added to this difficulty are varied conditions and needs of each individual. The so-called schools for stammerers fail, partly because they teach in classes. No two cases are alike, each requiring individual study and complete mental concentration of teacher and pupil. Therefore, treatment not based upon this individualistic basis must logically fail. Fully 95%



of those who come to me have been victims of these schools, have become discouraged and doubtful if any one could give them the relief they longed for. The seat of the trouble had never been reached in class work where the methods taught helped a few and carried along on a tide of enthusiasm a great many. But the "reason why I stutter" had never been explained.

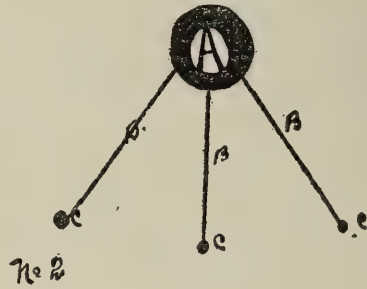
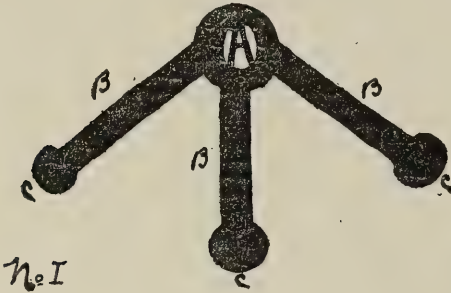


Diagram No. 1. Let 'A' represent the motor nerve center and the thick lines 'B' represent the strong outflowing energy or force uncontrolled by the mind as used by the stutterer and stammerer in his speech, and let the balls 'C' at the end of the thick lines represent the peripherals or nerve terminals, intensified or stimulated by the sympathetic action at the speech points of contact with tongue, lips, and throat.

Diagram No. 2. This serves to illustrate normal speech, the energy controlled by the mind to the speech points C from A by the thin lines B.

Diagram No. 1 will serve to illustrate another point. "I can talk very well when calm but the instant I become excited I am confused, and lose control of my speech apparatus." Such expressions we hear frequently, which demonstrates the necessity of absolute, permanent control of the nerve energy to the culminating point where the emotional force can not influence or prevail against it, disturb its balance or equipoise.

Suggestions to parents with speech-defective children and the results of neglect in childhood: Parents with a speech defective child have a grave responsibility and will secure for it the treatment it needs even at a sacrifice. They should not be influenced by those who tell them he will outgrow it. Even physicians often make this error. It is too much of a risk. This parental neglect in childhood is responsible for many stuttering and stammering men and women.

The speech specialist must also be a voice builder, or master

of the singing voice. The weak voice, thin in quality lacking in power and brilliancy of timbre and carrying power, either through non-use or faulty use or imperfect development during the mutation period, demands serious attention to correct. These conditions are of great importance as a distinct cause of stuttering or stammering. The discipline of the voice in reference to speech is as necessary as it is in reference to singing. Therefore, the speech specialist must be equipped with a practical knowledge of the development of the singing voice.

The mutation period in boys is sometimes responsible for speech defect development through faulty phonation, resulting in voice failure. Such cases call for special vocal exercises suited to his particular need, striving to produce sustained, smooth, musical satisfying quality and gradually eliminating the uncertain, jerky, squeaky, staccato and freaky characteristics.

The law of use firmly fixes the habit of imperfect speech in the child. In childhood the habit is confined to the physical, the first stage of the affliction. Through continuous use, defect and humiliation it develops into the second or mental stage known as Lalaphobia or fear of stuttering which requires more skill and a longer time for the specialist to eliminate. Do not send him to the so-called Stammer Schools, where he will be herded in classes, and come in contact only with other stutterers and stammerers. This constant association with other victims is the very worst thing that could possibly happen to him. Instead of changing the mental condition for the better by establishing a new method of speech control, class work and school environments and associations do the opposite by fixing more firmly, through contact, the conditions of other stutterers and stammerers. Therefore, insist on private treatment, psychological in character, permanent in result. The earliest possible training is unquestionably the best, because the habit of defective speech has not yet become chronic, the language faculties are stronger and more responsive to treatment than they ever will be again.

Mimicry is one of the chief causes of stuttering and stammering among children, and should be promptly rebuked by the parents for it is as contagious as any physical disease.

The majority of the pronounced cases in childhood are undoubtedly due to heredity even where it is thought to be caused by fright and sickness, it is a development of predisposition, or



slumbering tendencies of heredity. I recently had some cases from a family of ten children and every one was afflicted with the disease, though neither the mother nor father had any impediment of speech. It developed upon inquiry that two aunts on the mother's side had a speech difficulty.

The question of temperament, the constant apprehension is an important and difficult one in the treatment of speech defects, and calls for more skill and tact perhaps than any other phase of the work. The temperamental victim suffers very keenly the humiliation and disgrace. This timidity and anticipation of trouble must be controlled before any advance or change can be made in his speech restoration, and is conquered only after a tremendous struggle.

214 *Permanent Building.*

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## **Herpes of the Larynx and Pharynx, With Report of a Case.**

By D. A. PRENDERGAST, M. D., Cleveland.

Herpes of the larynx and pharynx is an extremely rare disease. According to Glass out of a yearly number of about 13,000 cases at the Chiari clinic, two to five cases of herpes of the larynx and pharynx are observed. In reviewing the literature up to 1906 the same observer found only 23 cases recorded.

Although a very rare condition, yet there is sufficient evidence in the literature, from clinical observation as well as from microscopic studies, to show that all herpes of the larynx and pharynx is not of the same type. There seems to be two different groups of cases, namely the form of herpes that accompanies some general febrile condition, and the form that has a neuro-pathic origin and resembles herpes zoster of the surface of the body. In the study of a group of cases at the Chiari clinic in 1906, Glass presents very convincing clinical and microscopic evidence to show that the majority of cases of herpes of the larynx and pharynx are of the febrile type; the type resembling herpes zoster of the integument being relatively rare. He reports a group of 14 cases that occurred in epidemic form. None of these cases presented symptoms typical of herpes zoster. The

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*Read before the Ophthalmological and Oto-Laryngological Section of the Academy of Medicine of Cleveland, November 24, 1911.*

eruption in every case was bilateral and did not follow the path of any one nerve. Cultures taken from the vesicles showed no specific organism, but staphylococci and streptococci were found. The pain was not as severe as is usually found in herpes zoster and the course of the disease was much shorter. Recurrence was also noted. While these observations are emphasized by Glass to prove that the greater percentage of cases of herpes of the larynx and pharynx are not of neuropathic origin but expressions of some febrile condition, yet the existence of herpes zoster is not denied and few typical cases are reported.

Our case, judging from the clinical findings, belongs to the class of herpes zoster. The eruption was decidedly unilateral, followed a definite nerve path, and exhibited no signs of breaking down. The neuralgic like pain was very severe.

The onset of herpes of the larynx and pharynx differs but little from that of herpes elsewhere in the body. There is a prodromal period from two to five days when the patient complains of general malaise, slight fever and constant severe pain in the throat. After the appearance of the eruption the constant neuralgic like pain is alleviated somewhat, but there still remains severe pain on swallowing. Pain in one or both ears is sometimes present. The eruption is characteristic and with the possible exception of some rare forms of pemphigus and some still rarer form of erythema multiforme spoken of by Glass, it resembles no other condition of the larynx and pharynx.

The diagnosis is usually not difficult. The mode of onset, the characteristic appearance of the eruption, the dysphagia, the clinical course of the disease is sufficient for a diagnosis. The differential diagnosis between herpes zoster and herpes accompanying a general infection is somewhat more difficult. In herpes zoster the eruption is unilateral, follows a nerve trunk and is accompanied by severe pain. Recurrence is rare. In the febrile type the eruption is not limited to any one side. It does not occupy any definite area corresponding to the distribution of any nerve. The vesicles show a tendency to break down. The pain is less severe and the course of the disease is shorter. Recurrence is not uncommon.

The treatment is mainly symptomatic. Salicylates internally are recommended. For the pain, ice pills, insufflation of orthoform and codein may be used. The prognosis is favorable.



The case here reported came under our observation at Lakeside Hospital, in the service of Dr. J. M. Ingersoll. I wish to thank him for his kindness in permitting me to report this case. I also wish to thank Dr. C. E. Pitkin for assistance in presenting this article.

The patient, a man aged 33, complained of sore throat, pain on swallowing and pain in the left ear. The family and personal history was negative.

Present illness: Perfectly well up to one week ago when he suffered from general malaise and pain in the throat. The pain in the throat had not been quite as severe during the last two days but he experienced great pain on swallowing. He could scarcely swallow water. Also complained of pain in the left ear.

Examination: Patient was a well nourished foreigner, apparently in good health.

Nose: Some hypertrophy of turbinate tissue was seen but breathing space was very good.

Throat: Nothing abnormal was found in the tonsillar region or in the nasopharynx. On the posterior wall of the pharynx there was a row of vesicles about two mm. in width extending down towards the larynx. The vesicles were sharply outlined, appeared distended with fluid and rested upon an inflamed areola. A similar group of vesicles was seen on the laryngeal surface of the epiglottis, and in the arytenoid space. The vocal cords were normal in appearance.

Ears: The left tympanic membrane appeared slightly congested but no bulging was evident. The right tympanic membrane was normal. The functional test in both ears was normal.

Treatment: An alkaline gargle was given and salicylates administered internally. The patient was seen again in one week. The pain was not so severe on the second visit. The examination of the throat showed that the eruption was rapidly disappearing. The patient did not return after this visit.

## The Use of Salvarsan.

By FRANKLIN E. CUTLER, M. D., Cleveland.

A few days ago a patient from out of the city came to consult me about his throat which had been causing him trouble for some time. I told him that the trouble was caused by syphilis. He informed me that it could not be possible, that he had been infected about a year previously but had received two injections of "606" with a guarantee for ten years. The doctor told him that it might be necessary in ten years' time to have another treatment. This incident prompted me to write this short article.

On August 12, 1910, the *Neues Wiener Tagblatt* published a sensational article covering parts of five pages, dramatically written, setting forth the idea that at last the long sought cure for lues was at hand. Since then the public have clamored for it—and they have been getting it. I know not how much wrong has been done these unfortunate sufferers by permitting them to think that one or two treatments with salvarsan would solve their troubles for life; but that this impression prevails, there is no doubt, and I regret that it is not the laity alone who have this erroneous conception but many well meaning medical men who have been deluded by glowing accounts in their medical publications.

That the remedy has been in the hands of the medical profession only about a year, is sufficient reason for our inability to make definite statements as to its future.

It happened that I saw some of the early experimental cases treated in Vienna a year ago and was then aware of the brilliant results obtained, especially in a certain class of cases.

I have been most anxious to know more of the real facts, and what could be honestly and intelligently predicted concerning this treatment, so in August and September last, I made careful inquiry from men of experience and integrity on the Continent who have had an opportunity of observing many cases treated with arsenobenzol, and wish to give these few facts, which I have every reason to believe are correct.

While the Wassermann reaction cannot be completely relied upon by any means, yet all suspected cases in the Vienna nose and throat clinic are sent out for blood examination, and while



all cases of infection do not show a positive reaction, the large number that do makes the test a great help in the diagnosis of those cases in which there is a reasonable doubt.

Salvarsan is not a cure for lues as it is used at present.

It is generally conceded that intravenous infusions produce less reaction and quicker results than the deep intramuscular injections, though not so lasting. The latter do not take effect so quickly but have a more lasting result.

In cases in which it seems necessary or advisable to get quick results the intravenous infusion is given, and is followed by an intramuscular treatment in from four to ten days.

Let me add here, that since the technic of preparing the solution has been improved, the quantity given at a treatment has been generally increased, 0.75 grams being more frequently and satisfactorily used than a few months ago.

One successful treatment with this preparation seems to have about the comparative value of an ordinary mercurial "Kur" of three to six weeks' duration.

That arsenobenzol cannot be used in all cases of lues has been thoroughly proved. While there have been many cases in which the eyes have been affected following its use, I am better able to speak of the ear cases, on account of my association with otologists. In a nutshell I can say without doubt that there have been a sufficient number of unfavorable results in from one day to 14 weeks following the treatment to warrant the statement that when a pathological condition exists in the hearing apparatus, arsenobenzol should be used with great caution, if at all. Patients complaining of tinnitus aurium, dizziness or exhibiting any of the symptoms collectively classified by Menier, should be regarded as unfavorable cases for this treatment. The report on a sufficient number of cases, collected by Dr. Beck of Vienna, and soon to be published warrants, this statement.

The worth of salvarsan as a valuable accessory to the already well known methods of treatment by mercury and iodids can not be questioned. However, to consider "606" by itself as a cure for syphilis is erroneous and will be gravely detrimental to both patient and physician.

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## EDITORIAL

### Municipal Typhoid Fever.

The appearance of the fourth and probably last of the Reports on Typhoid in the District of Columbia gives opportunity for the consideration of what is perhaps the most thoroughly worked up epidemiological study of typhoid in this country if not in the world. Carried out over a period of about five years in a city and district where all the factors believed to be concerned in the distribution of typhoid are known to exist, and studied under the direction of the Marine Hospital and Public Health Service, the conclusions merit more than usual attention. Inasmuch as the investigations were carried on in such a way as to gain comparisons between conditions before the establishment of a filtration



plant and afterwards, and tend to establish to a certain degree the responsibility of factors other than the central water supply, they are of especial interest to us in Cleveland.

The typhoid death rate in Washington has been rather high, running in general over 40 to the 100,000 population, until recent years, when it has shown a more or less progressive reduction, but not to the degree expected after the establishment of a filtration plant. Th researches were undertaken in the endeavor to place the responsibility where it belonged, and though some points are not thoroughly decided, they are in general minor ones, and the conclusions should have great weight.

Before consideration of these conclusions one must bear in mind that some of the conditions in Washington differ markedly from our home conditions, and that for this reason certain of the factors have a greater weight in the determination of the total than they would have in Cleveland. The greater warmth of the climate with the consequent increase in the breeding period of the fly, the greater transient population, and the large negro population are the most notable of these factors and bring in marked variations from our own situation.

The first thing to be noted is that the annual rise in typhoid morbidity is in the summer months, and that it occurs earlier than in Cleveland, beginning in June while the summer epidemic here is usually not until July or even later. This is of course the fly period, and also the period of high temperature in which the development of all sorts of bacteria in milk is most rapid. The comparative absence of typhoid in winter is always suggestive of sources other than the central water supply, and is in line with the experience in Cleveland. The transient population seems to be of importance, or at least the number of cases found on investigation to have been infected outside, for in the periods when the cases were individually followed out, about one-fourth were of outside origin, a condition not uncommon where the whole countryside is infected. This, if constant, as it would appear to be, would reduce a death rate of 40 in the 100,000 to 30, and the 1910 rate of 23 to less than 17, or about the same as Cleveland in the same year. On the other hand the investigations of our own department show that our percentage of imported cases is so small as to be almost negligible. Analysis of the cases with regard to color is also made and shows, as would be expected, that the

incidence and the mortality in the colored race is far higher than in the white, the 1910 rate among the latter being only 15 to the 100,000 as against over 30 for the former, the usual annual formula being one to two. Whether we should take the white race alone for comparison is a question, as the poorer classes in Washington are mostly colored while we have a variety of imported laborers whose sanitary understanding is but little better than that of the Washington negro. While there was a steady reduction after the introduction of a water supply which is fairly satisfactory, the so-called *residual typhoid* has remained so high that the other factors require great attention. There are certain facts brought out which are very suggestive. The summer incidence, the unusual morbidity among young children, and the added fact that a large number of cases, as high as have been found in association with definite milk routes, together with the discovery of carriers among the employes of some of these routes point to milk as of great importance. The prevalence of typhoid in the various country districts from which the milk comes, and the heat of the summer months, are very favorable to the development and distribution of typhoid organisms in this way, to a far greater extent than in Cleveland where the milk inspection in the country districts is of such an unusually high grade, and where so large a proportion of the supply is pasteurized before delivery.

Raw shell fish and other raw foods are also believed to have a very definite share in the distribution, and flies, especially in the districts where the open privy still holds sway, are of great importance. With regard to contact it is found that there are a very large number of carriers, so many in fact that it is suggested that many of the bacilli harbored by them are no longer pathogenic, else there would be a more serious endemicity than at present.

The general conclusions are that the greater part of the typhoid in Washington is carried by milk, green vegetables and other foods, and by fingers and flies, and that protection of these foods before entrance into the city, would greatly diminish the disease.

The recommendations include *adequate reporting* of all cases, proper placarding and isolation of patients with disinfection of the dejecta until two negative examinations for typhoid bacilli have been made, in the same way as for a discharge of a diphtheria patient. Legislation to control chronic carriers, and the abolition of conditions permitting the access of flies to infected



material, pasteurization of the entire milk supply and disinfection or sterilization of all containers are emphasized, with the additional precaution of forbidding the use of milk containing more than 500,000 bacteria to the c.c. before pasteurization are further urged. There should be no milk or garden truck sold from farms without adequate sanitary conveniences. Finally the suggestion is made that the water supply should be further purified to meet a certain standard and if the desired purity can not be reached, the use of chlorid of lime is advised.

The report can be well applied to our own situation with the proper modifications due to different conditions. While the time interval is too short for any conclusions the marked reduction in typhoid incidence and mortality since the adoption of measures to remove water borne typhoid, suggests that in addition to the epidemic typhoid part even of the residual typhoid, may be water borne. It is admittedly improbable that this is the only factor, at least in the summer typhoid. Milk, food, contact, flies and carriers are the other main factors, and the chief responsibility lies on the practicing physician. Unless the physician reports his cases, they act as foci of distribution, and he is in fact, if not by law, responsible for any illnesses or deaths starting from such foci. The actual death rate from typhoid is probably less than 10%, so that when the proportion of reported deaths to reported cases is 30 and even 40%, as is frequently the fact in Cleveland, there is but one conclusion to be drawn, namely that the clinician is not doing his duty and is therefore interfering directly with the attempts of the Board of Health to diminish typhoid.

Investigations of the type of the Washington report are of immense value and show that we have before us the various means of distribution of intestinal diseases, and that the essential for any community is to determine the proportion of responsibility to be placed on each. The best way to find out is to remove the means as rapidly as possible, until the disease is driven from pillar to post and becomes manageable, as it has already become in nearly all of the civilized communities of the old world.

R. G. P.

### Stability in the Administration of Public Health Affairs.

During the past year the State Board of Health has furnished us with an example of demoralizing effects of that line of action which is usually termed "politics." Certain changes were made under the plea of economy. The Board may have been sincere in its actions and frank in its statements. If there was a real desire for economy the summary dismissal of the director of the bacteriological laboratory was ill-advised, since it will be impossible to obtain another man of equal training and ability to accept the position at any lower salary. And because there lurks a rather general suspicion of the part that "politics" may have had in the affairs of the Board we imagine that the latter is finding it rather difficult to fill this important post with the proper sort of man at any price.

We have no wish to stir up anything that the State Board of Health may be trying to live down. We wish only to use the results of the actions of the State Board as a warning against ill-advised possibilities in local health matters. We are so accustomed to the ebb and flow of appointive municipal officers with every biennial change of administration that many look upon a complete "new deal" in office-holders as a natural consequence of the election of a new mayor. In regard to the administration of health affairs we are protected against any tendencies toward inconsiderate change that might arise. The legislature which made mandatory the appointment of city boards of health so arranged matters that such boards do not automatically go out of existence with a change of administration. Cleveland is further safeguarded in that its newly-elected mayor is a man of more than usual intelligence, is the son of a physician and has a more than ordinary interest in medical matters. It is to be taken for granted that such a man would do nothing to cripple but everything possible to maintain the efficiency of a health board.

That the present municipal Board of Health and its officers are satisfactorily efficient, more efficient even than many well informed physicians realize, must be conceded when consideration is given to the very great progress in matters of public health that has been made during the past two years. The past summer saw the inauguration of work in child hygiene. Properly located babies' dispensaries will become foci for the dissemina-



tion of knowledge relating to the care and feeding of infants. The tuberculosis problem is so big that progress is difficult to estimate. That 60 to 75% of the fatal cases of this disease now reported to the Health Office are visited before death is evidence of distinct advance. Things of a more spectacular nature might be done, but it is doubtful if there can be done anything of greater value than the education, within the home itself, of tuberculous individuals and of their families. The results obtained in these two lines of work have been made possible, at a relatively low cost to the city, through affiliation with already organized bodies. Closely related to the work in child hygiene and to that against tuberculosis are milk inspection, the value of which has been augmented by an increase in the number of inspectors and sample collectors, and tenement house inspection, which has been placed in the hands of an expert. The wisdom of the Board of Health in determining upon the chlorin disinfection of the water supply, in the face of a considerable amount of lay outcry and in spite of the occasional lament of some in whom a more judicious attitude might be expected, is proved by the decreased typhoid incidence. This decrease is all the more striking since those two prime factors, rainfall and prevailing south wind, the conjunction of which has heretofore been followed with almost mathematical certainty by the occurrence of typhoid fever in epidemic form, have acted more strongly during the past three months of the present year than usual.

Of what has already been achieved the citizens may well be proud. The achievements enumerated are only the beginnings of lines of endeavor which must be continued and developed. To these must be added the older and newer problems which every growing city must face as well as certain local ones. The questions relating to water purification and to the prevention of water pollution are alone sufficient to require the most careful consideration of a health board of the highest possible efficiency. It is because of the importance of the matters with which the health officials of the city must deal that it is proper to ask that nothing be done which might lead to discontent and change. It is because of what has been done and because of the in-coming mayor's ability properly to appreciate what has been done that we may expect the future development of municipal health affairs to be facilitated in every possible way.

O. T. S.

**Havana Meeting of the American Public Health Association.**

The annual meeting of this Association, which comprises Canada, Mexico, Cuba and the United States, was held in Havana in the first week in December and was well attended by delegates from the various subdivisions. In the intervals of the meeting a variety of entertainments was offered by the Cuban delegates, ending with a dinner on the last day. The date was unfortunate as most of the delegates were obliged to leave on Friday and Saturday, so that but few of the visitors were able to attend. The place of meeting was of great interest to Americans as showing the changes which had been made as a result of our temporary residence, in the way of changing the city from a pest hole, where the streets were filthy, the sewage disposal rudimentary, and a visit by non-immunes was dangerous, to a clean, healthy city, free from pestilence, with a typhoid rate far better than that of many of our northern cities, and a winter resort for sick and well. In the sanitary exhibit there were charts showing the fall in infectious diseases dating from the American occupation, and it is most encouraging to find that the lessons of the past have been taken to heart and that the administration of the Public Health Departments is efficient and conscientious. Many of the papers dealt with these alterations, and it was unfortunate that save in a few cases there were no written or spoken translations of the papers in Spanish for the benefit of the many who could not understand the original. The papers at the general meetings dealt mainly with the chief quarantinable diseases, and includes a very interesting summary of the measures taken this last year in Canada, the United States and Cuba to prevent the entrance of Asiatic cholera, measures which were so eminently successful. Our recent work on hookworm and pellagra was discussed by some of the men actively engaged in the work, and encouraging reports were given as to the receptiveness of the patients and their willingness to cooperate.

Three sections held meetings, the Laboratory Section, the Section on Vital Statistics and the Section of Municipal Health Officers. This last is a new Section, and its papers dealt mainly with the problems confronting communities, and the best means of meeting them. In the Laboratory Section, among other papers the reports of the Committees on Uniform Methods of Water, Sewage, Air and Milk Analyses were received, and showed the



modern tendency to omit all elaborate methods which did not have a direct bearing on the actual relation to disease. For instance, the presence of any intestinal bacteria was considered as evidence of sewage contamination, and the finer details of differentiation were made less essential. The meetings of this Section were held in the Laboratory of General Wood, at some distance from the main meeting place. A new section, made up of sanitary engineers, was established and should be of great value, provided that at future meetings precaution be taken to have the section and the general sessions held in the same building so that it may be possible to select matters of interest from each, without being held to steady attendance at any one.

A very interesting visit under the auspices of the local committee was made to the fortresses and to the Dentention Camp where all the immigrants are detained under quarantine until the absence of yellow fever, etc., is assured. The place is very pleasantly located, and constructed with due regard on the one hand to the comfort of the immigrants and on the other to all sanitary details such as screening of the yellow fever pavilion.

R. G. P.

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### **Medico-Psychological Clinics (Out-Patient Departments), in Ohio State Hospitals.**

In recent years there has been a concerted attempt made to place the treatment of mental diseases and defects on a higher plane and to provide for the acute insane the same tender care and consideration that is afforded those suffering from physical disorders in our general hospitals.

In several American State institutions there are already in operation, properly equipped, modern psychopathic hospitals where early and favorable cases receive thorough individual study and treatment along advanced lines. These new establishments have undoubtedly been the means of preventing a large number of mentally unstable individuals from progressing along the road leading to chronic deterioration and decay. But to further carry on this campaign of prevention in behalf of those who are developing a mind disease, it has been considered advisable by the best psychiatrists, to establish medico-psychological clinics or out-patient departments, in connection with the various State hospitals where

persons whose mental organizations are beginning to crumble may voluntarily obtain a skillful examination and proper treatment on the same humane basis that prevails in the dispensary service of our leading ordinary hospitals. Out-patient departments are now successfully conducted at Charing Cross Hospital, London, Long Island State Hospital and the new psychopathic hospital in Syracuse. At the Kings County Hospital, and the new Gouvernor Hospital of New York City, plans are under way for the opening of these clinics.

Recently the State Board of Ohio Charities, through Dr. H. H. Drysdale, the physician member, received full authority from Governor Harmon and the Central Board of Administration to inaugurate an out-patient service at the Cleveland State Hospital. He was instructed to cooperate with Dr. Chas. H. Clark, medical superintendent of the institution, who has had a large clinical experience at the Government Hospital for the Insane, Washington, to work out a plan. When this has been fully developed and in a satisfactory state of operation, a medico-psychological clinic will become a part of every State hospital in Ohio. On or about January 15, 1912, the Cleveland branch will probably be installed and patients on a certain day each week thereafter, will be at liberty to seek treatment with the same freedom that exists in other dispensaries. The medical staff of the institution will be prepared to give to each case individual attention which will include a careful study of the patient's physical and mental condition. Facilities will be provided for the scientific examination of the blood, spinal fluid and other fluids and excretions. The Clearing House of the Associated Charities will be consulted when necessary in regard to the status and environment of those who seek relief.

Physicians of Cuyahoga county and vicinity will be at liberty to refer to the dispensary all deserving cases that seem to be in the throes of mental unsoundness and the officials in charge of the out-patient department are extremely anxious that all patients be referred as early as the disorder is recognized. They would also be grateful if the physician would send with each applicant a brief history of the condition as he found it. Unfortunately many of the acute insane among the poor never consult a physician until the mental malady is far advanced and if the district physician, medical school inspector, or Associated Charities representatives



discover any of these early cases they should at once be referred to the dispensary of the Cleveland State Hospital. The clinic will very likely be located in the administration building and the full staff will be on hand, at the appointed hour, to properly care for all cases. As the service develops, those interested hope to establish an aftercare bureau where many patients who have been helped, as well as those who have been discharged from the institution may be safeguarded against recurrences, a condition extremely common among the insane. Furthermore a bill will be introduced in the next legislature which will provide for an increase in the number of patients the superintendent of the State hospital may admit at his discretion and without adjudication by the Probate Court. When the new psychopathic hospital is erected at the Cleveland institution, Dr. Clark will probably then have authority to accept more voluntary acute patients and provide them with modern hospital care at a time when great hope may be entertained for their recovery.

That great benefit will accrue from this new departure cannot be doubted for a moment and it will also cause our State hospitals to become real curative establishments—modern hospitals in the truest sense of the term. This great commonwealth has now expressed a willingness to assist in this important reform, in order that some of its citizens may be spared from a wretched life of chronic mental invalidism. It is to be hoped that the medical profession of Ohio will do its part in making these new clinics an unbounded success.

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#### Department of Therapeutics.

Conducted by J. B. McGEE, M. D. \*

**Arteriosclerosis:** Harlow Brooks in the *International Clinics* (Vol. III., Series 21) summarizes the modern treatment of arteriosclerosis, placing the drug management of the disease as probably of least importance. He states, however, that his pessimism as to the drug treatment refers entirely to its effects on the disease as such. The symptomatic use of drugs in arteriosclerosis is quite as effective as in many other chronic disorders, and therapeutic skill is nowhere put to a more severe strain than is often the case in management of the complications which appear in the various stages of this disease. All observers write on the use of iodids in arteriosclerosis. Osler states quite frankly that it is the only drug of real importance and there are few who would care to seriously argue the point. Just the manner in which iodine acts in the disease is a very much mooted question. Romberg believes its efficiency lies chiefly in its ability to reduce the viscosity of the blood. According to some, it promotes the absorption of degenerated tissues in the arterial walls, causes the lime salts there deposited to go again into solution, lowers the blood pressure, promotes

nutrition, and so on. Its effect in gummatous arteritis seems indeed to be that of a specific but except in this instance he cannot say that he has ever seen actual changes in the lesions, even in syphilitic arteritis follow the use of iodine. Yet there is no reasonable doubt but that this drug is of the greatest possible value in the disease in practically all forms and all stages, the only satisfactory explanation of this undoubted fact seems to be that the thing has been found clinically useful. Its action in experimental arteriosclerosis cannot be looked upon as yet as other than doubtful. The best dosage depends on the individual and his reaction to the drug, and the form in which it is to be administered depends also largely on the individual inclination. Personally he has used the iodids of sodium and potassium, without preference for either, but when used for long periods has given it well diluted to avoid gastrointestinal irritation. After iodine, mercury and arsenic seem most useful and yet there is no explanation of their action sufficient to explain their well known clinical value. The citrates have been recommended because of their action on the blood, and Barr commends the use of benzoates because of their effect in facilitating the excretion of the purin bodies. He has used the bromids quite generally in these cases and the salts of sodium and strontium appear to be best borne and most efficient. In cases of high tension or mental perturbation, the bromids lower blood pressure, quiet apprehension and induce sleep. O. T. Osborne strongly advocates the use of thyroid and intimates that the efficiency of iodids is due similarly to that of the thyroid. The more usual vasodilators such as nitroglycerin, the nitrites, especially that of sodium, and erythrol tetranitrite and chloral hydrate, may be used temporarily in instances where high tension reaches a dangerous degree. He has not found the long continued use of these drugs either beneficial or justifiable even in cases of high tension for they commonly soon lose their dilatory effect, and at best the results on the greatly diseased vessel walls is questionable. General measures have proved much the more efficient in his experience.

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**Dyspepsia:** In the October number of the *Therapeutic Gazette*, A. W. Calloway considers the dyspepsia of heart disease and its dietetic treatment. Until there is some cardiac insufficiency the function of the stomach is only slightly disturbed. In compensated heart cases the acidity of the stomach seems to depend upon the temperament of the individual rather than any influence exerted by the heart. When the heart commences to weaken the portal system engorges correspondingly and the digestive tract thereby suffers. There is a diminished power of absorption of fats in heart disease due to a high venous pressure preventing the thoracic duct from emptying itself, and it has been shown that a high portal pressure causes the lymphatics of the intestines to collapse. Hirschfelder says: "Rest for the gastro-intestinal tract is quite as important for the heart as for the muscles. An interval of at least five hours should be allowed between meals in order to give the stomach time to empty itself. Especially is this desirable in cases of impaired motility when stagnation is evidenced by flatulency and dyspepsia. The principal meals should be at midday and the lightest at evening. Indigestible food should not be taken and the quantity of liquid be restricted to some extent, as an excess of it distends the vessels and raises the arterial tension. As a rule liquid must be decreased in proportion to the decrease in quantity of the urine. Since the distention of the stomach may cause mechanical embarrassment it is necessary that the meals never be heavy and should be made of the foods which are least likely to ferment, such as milk, eggs, toast, zwieback and the various cereals. A salt-free diet is often advisable for a fortnight when the blood pressure is high. A pure milk diet of five



or six pints daily is often very useful in high pressure, we are justified in saying there is a scientific selection of food in heart disease which should always be followed.

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**Suprarenal and Pituitary:** The *New York Medical Journal* for Oct. 28 states that suprarenal and pituitary extracts, both agents of comparatively recent introduction, are being widely used. As they are often recommended for the same or similar conditions and as their physiological actions are in many respects similar, it may be well to call attention to some of the differences as well as resemblances, as revealed by some of the recent researches. Both cause a rise of blood pressure and marked contraction of the uterus; both have a tendency to cause glycosuria; both are used as vascular and uterine stimulants. These effects are, however, due to fundamentally different causes. A knowledge of these may help in defining more accurately the uses of the extracts. It is now possible through one of the most important of recent generalizations in physiology and pharmacology to discuss nearly all of the physiological effects of the suprarenal extracts, or adrenalin, from one standpoint, its effects upon the endings or, more correctly, the myoneural junctions of sympathetic nerves. Throughout the entire body the effects of adrenalin are the same as those of stimulation of the sympathetic nerves. The action of the pituitary extracts on the other hand has not, so far as is known, any relation to the sympathetic nerves; in the case of organs composed of plain muscle the latter is stimulated directly. As is well known there are three important vascular areas which are not controlled, or only very weakly controlled by vasoconstrictor nerves, the brain, the lungs and the heart. Adrenalin has little if any constricting action upon the vessels of these organs; it is said to be almost useless in operations on the brain. The vessels of these areas, however, are contracted by pituitary extract. After a very brief period of stimulation the heart is weakened by pituitary extracts; the effect seems to be due to the constriction of the coronary vessels. The weakening of the heart from pituitary extracts causes a fall of pressure in the pulmonary circuit; the general vasoconstriction causes a rise in systemic pressure which counteracts the tendency to anemia of the medullary centers which results from cardiac depressants. Wiggers believes that this combination of actions peculiarly adapts the pituitary extract for use in hemoptysis. The fact that adrenalin, through its stimulating action on the heart, increases the pressure in the pulmonary circuit would contraindicate its use in certain cases of pulmonary hemorrhage. Both adrenalin and pituitary extract have been warmly recommended in uterine atony and postpartum hemorrhage. When adrenalin causes uterine contraction it is from a stimulation of sympathetic nerve endings; pituitary extract stimulates the muscle cells directly. Dale found that adrenalin normally causes a relaxation of the uterus in some (non-pregnant) animals, this also occurs in other animals (pregnant as well as non-pregnant) after large doses of ergot. If these conditions hold for man, the use of adrenalin with ergot, or after it, would be contraindicated, whereas that of the pituitary extract would not be. Bell, Klotz and others have recommended pituitary extract in intestinal paresis after operation; it causes contraction of the smooth muscles. Adrenalin, on the other hand, causes relaxation of the entire alimentary tract (in accordance with the sympathetic innervation) contracting in most animals only the sphincters. Both extracts have important relations to the carbohydrate metabolism; adrenalin causes glycosuria. In cases of pituitary disease with increased carbohydrate tolerance (as in late cases of acromegaly) the administration of the pituitary extracts is indicated, in cases with diminished carbohydrate tolerance or with glycosuria (as in early acromegaly) such med-

ication is contraindicated. Bab has recently advocated the use of pituitary extract in osteomalacia in which suprarenal extract has been much used. It would be some time before some of the suggestions as to the therapeutical uses of these drugs are thoroughly tested, but these illustrations show that a wealth of physiological data concerning them is being collected.

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**Vaccine Therapy:** In the *Medical Record* for Oct. 28, W. C. Wolverton writes concerning the value of vaccine therapy in acute rheumatic polyarthritis. While the specific causative influence of *Streptococcus pyogenes* in acute rheumatic polyarthritis is not universally admitted, many things point to its being at least the predominating factor, either as the true etiologic agent, or as being present in a mixed infection. From the experience of others and his own observation he concludes that the streptococcus is the causative agent in at least the majority of the cases, and since beginning the use of streptococcus vaccines in the treatment of this disease, the response has in every case been so prompt that it has had the appearance of a "therapeutic test." In many cases where cultures from cases of polyarthritis have produced cocci of the diplococcic or staphylococcic type there has been a question as to whether the organisms were not really streptococci, which, under unfavorable cultural and environmental conditions, thus manifested evidences of pleomorphism. Certainly the severity of the disease would point to streptococci rather than staphylococci as the etiological agents. Several instances have occurred in his practice which have convinced him of the specific causative influence of the streptococcus in acute rheumatic polyarthritis. Dissatisfied with the salicylate treatment he began the routine use of streptococcic vaccine in six such cases; six cases do not form a large series from which to draw conclusions but they were all very severe in character, and the response to the exhibition of *Streptococcus pyogenes* vaccine was in every case so prompt and satisfactory that he felt impelled to report the cases and to urge others to give the remedy extensive clinical trial. Moreover, in at least four of the cases the salicylate treatment was not followed; and in two cases the patients grew worse in spite of faithful adherence to salicylate treatment; so the uniformly good and prompt results must be ascribed to the vaccine. In every case the temperature quickly fell, there was a rapid cessation of pain and disappearance of signs of inflammation. The patients, moreover remarked a feeling of exhilaration or stimulation, which came on in from three to 48 hours after the inoculation. In no case was there any evidence of a harmful negative phase. In none of the six cases reported did any cardiac valvular lesion develop subsequent to the employment of the vaccine. The dose usually used was 30,000,000 or 60,000,000 streptococci. Considering the unsettled nature of the question of the specific etiologic microorganism, he advises employing a mixed vaccine containing *Streptococcus pyogenes* and *Staphylococcus aureus et albus*. The vaccines employed in the treatment of the cases reported however were all "stock" vaccines made from several strains of streptococci.

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**Tuberculosis:** A. Jacobi in *Therapeutic Medicine* for September, considers the treatment of tuberculosis, and warns us not to rely on a single method of treatment. Neither a single drug nor a single treatment will react on an advanced case of pulmonary tuberculosis. The least our tuberculosis specialist can do is not to rely, as the recent prejudice has been preaching, on sanatoria, air, food and rest alone to the exclusion of medicinal therapy, which has been proved helpful as a cure, and a relief of symptoms. The general practitioner whose patients grow up under his eyes can do a great deal for them. As a



rule tuberculous deposits are frequent in the apices of children; in them they are more often found disseminated, quite often in the lower lobes. When in company with open tuberculosis, the person having the latter should be removed. The frequency of narrow chests should be overcome by sensible gymnastics, deep inspiration and dumb bell exercises. They must be persisted in during school life and after puberty, more perhaps in the second decade of life than before. The general circulation is much improved by that of the surface. Dry rubbing, cold washes, and thorough friction, washing with alcohol and water—not with alcohol only—will be helpful to the periphery and the heart. As to tuberculosis of the larynx, it is apt to be complicated with that of the pharynx and the suffering from dysphagia is often fierce and unbearable. What to do? Gargles are of no use, or very little indeed; they never reach the posterior wall, and in ninety-nine cases a gargle which reaches the posterior wall is swallowed. He uses a spray of nitrate of silver in a  $\frac{1}{4}$  to 2% solution twice or three times a week, through the mouth or more frequently through the nares. The excessive pain caused by eating and drinking may be eased by the local application of a cocain solution a few minutes before eating. Better still is the effect of morphin locally. A dose of five or six drops of Magendie's solution, or a sixth or eighth of a grain hypodermic tablet is placed on the back of the tongue and sucked down without water. The effect is almost immediate, very nearly like that of a subcutaneous injection. This may be done a few minutes before every meal, and in this way he has relieved many patients these sixty years. He has been told that his practice was dangerous and that he was causing morphinism, but nobody has ever complained of the relief he gave him. Internally he uses guaiacol carbonate and sees no reason to replace it by any other guaiacol derivative. He emphasizes the fact that he treats no case of chronic pulmonary tuberculosis without guaiacol carbonate and arsenic, and is doing well, in fact he treats no case of tuberculosis, pulmonary, of bones or of glands, without these drugs. For sleepless nights he gives morphin as needed.

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**Colds:** The *Medical World* for November states that no treatment of colds can be successful without taking into account the underlying predisposing causes, consisting of lowered resistance from poor nutrition, mental and physical overwork, loss of sleep, worry, deficient elimination, mouth breathing, nasal obstruction, etc. Persons depressed by any of these conditions are readily affected by exposure to drafts, wet feet and ankles, or from insufficient clothing. The treatment indicated is elimination of toxins and restoration of the circulation to its normal equilibrium. First give calomel in broken doses followed by a saline cathartic. Follow this with atropin and codein in small doses frequently repeated until slight dryness of the throat occurs. This lessens the nasal secretion also. Tonics should be given to the feeble and run down, and antirheumatics in those inclined to or affected with rheumatism. Attention should be paid to the clothing. During the acute stages inhalations of compound tincture of benzoin in hot water are soothing. Sometimes it is well to start with the application of 1 to 1000 adrenalin chlorid solution on a pledget of cotton to each nostril. The pledget should remain in the nostril two or three minutes and then be removed by nasal forceps. This should be followed by the application to the entire surface of the mucous membrane as far as possible of a mild soothing oily compound as one composed of five grains of menthol, and five minims each of oil of eucalyptus and oil of cinnamon to an ounce of liquid petrolatum, of this five drops should be used in each nostril three times a day. To restrict secretion in rhinitis, prescribe atropin 1-500 to 1-000 grain; to relieve discomfort morphin 1-12 to 1-100 grain; camphor  $\frac{1}{2}$  grain, quinin  $\frac{1}{2}$  grain, and aconitin 1-500 grain, are also

more or less efficacious in this disease and are prescribed by some clinicians, one such dose in tablet or capsule being taken every two hours. To jugulate the disease, they can be taken every hour or half hour till a slight dryness of the throat begins, and then every two hours. Occasionally the dryness of the throat produced by the atropin is almost intolerable. In this case Dobell's solution with sufficient carbolic acid in it to cause smarting can be sprayed into the pharynx and it will usually be relieved. The patient can do this with an atomizer. For children correspondingly small doses should be given. Any condition in the nasal cavities causing obstruction to breathing and drainage, and with points of intranasal pressure call for surgical procedure after the acute condition is relieved.

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**Thyreoparathyroid Secretion:** Charles E. De M. Sajous in the *New York Medical Journal* for November 11, considers the thyreoparathyroid secretion as Wright's opsonin. He urges as of practical importance the fact noted by Lorand of Carlsbad: "The intimate relationship between the thyroid and our immunizing functions." With the thyroid apparatus as the source of opsonins, we are normally brought to ask whether it is not by exciting a center which governed these organs that, as he has long held, tuberculin and bacterial vaccines increase the opsonic power of the blood. On the whole, from the standpoint of therapeutics, it now seems permissible to conclude, in view of all the data he has submitted, that we are able by the use of thyroid preparations (which contain parathyroid) to increase the opsonic power of the blood both in health and disease, which means in so far as the opsonins can do so, that we can enhance at will the defensive resources of the organism. We must not lose sight however of the fact that we are dealing with but one of our defensive agents, and that the cooperation of others is essential to supplement nature's efforts most efficiently. If, as he has long urged, the other protective substances are likewise the products of ductless glands—a view which is also supported by many experimental facts—it is not unreasonable to suppose that the day may come when, quite familiar, through adequate research, with the precise nature of these secretions and their relative proportions, we may be able to create a synthetic antitoxin adjusted to each infection, and thus evoke in the blood and its phagocytic cells, an exacerbation of defensive activity capable of destroying abruptly the entire crop of pathogenic germs, long before the death dealing complications their presence entails can occur. This process is exemplified from his viewpoint by the crisis of lobar pneumonia, that *perturbatio critica*, frequently attended by a high temperature, which appears to him as the outward expression of a germicidal onslaught, the purpose of which is to raise the sufferer to the threshold of convalescence.

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**Ergot:** In the November number of the *Medical Council*, Daniel M. Hoyt treats of ergot as a therapeutic agent. How many of us in general practice think how old our ergot is, or from whence we obtain it, or what knowledge do we have that the product we are using is active, at all. For use by the mouth he thinks the most practical preparation is still the old fluid extract. It is best to obtain it in small amounts direct from some reliable manufacturer and physiologically treated. The idea that ergot is limited in its action in producing tonic contractions of the pregnant uterus is pretty generally believed, but a glance at the later literature on this subject would soon widen this view. Ergot is a powerful vasomotor stimulant acting very much as does adrenalin, namely stimulating the sympathetic vasomotor nerve endings. While its action on the circulation closely resembles adrenalin, it differs in this, that while adrenalin is extremely fugacious and almost immediately destroyed in the body, ergot acts much longer, is probably



active when given by the mouth and therefore rationally indicated in conditions of failing circulation. Practically ergot is becoming more and more useful in conditions of low blood pressure due to central depression, as in circulatory failure from acute infectious fevers, in delirium tremens, surgical shock, etc. Ergot is a very old remedy in chronic types of diarrhea and deserves a renewed trial here. One of the most interesting phases of the physiological action of the active pressor substances in ergot, is the resemblance to adrenalin, in the difference between their action on the pregnant, and non-pregnant uterus. This has been largely shown by Dale, Dixon, and Cushny, and has a most important clinical bearing. Ergot is commonly used in uterine hemorrhage from many different causes, but in functional types of dysmenorrhea it is generally thought to be contraindicated; from the experimental evidence however, it should have a fair trial in this direction, and he knows that ergot for some time back has been used empirically for this purpose. He emphasizes, first the importance of having a fresh and active preparation; second, the value of the drug as a powerful vasomotor stimulant; third, its possible value as a uterine sedative.

## ACADEMY OF MEDICINE OF CLEVELAND.

### CLINICAL AND PATHOLOGICAL SECTION.

The eightieth regular meeting was held at the Cleveland Medical Library, Friday, November 3, 1911, R. K. Updegraff in the chair.

A. Storey showed a case of an extensive burn of the third degree due to molten aluminum. The head, arms and a large part of the trunk had been burned. Scarlet R. ointment had been used and the result was unusually satisfactory. There were several different scarlet R. dyes, some soluble in oil, the others in water. The preparation used by Fisher in his cancer research work was known by various names: oil scarlet, red R. oil, soluble pouceau 3 B. This was an oil-soluble product and seemed to give the best results. Epithelialization had been perfect without recourse to skin grafts. Later in the convalescence an eruption of herpes-like spots was noted in the healed surface along the course of some of the nerves.

S. L. Bernstein said that he had used this ointment in a chronic ulcer in a diabetic. Healing promptly occurred although many other applications previously employed had been ineffective.

F. E. Bunts said that this ointment seemed to be very useful in some cases but in others, especially chronic ulcers, he could see no advantage in it over other preparations. In one large chronic ulcer he had tested it by treating half of the ulcer with simple cerate and the other half with scarlet R. ointment with the result that the two halves behaved the same. Herpes-like spots were not uncommon where recent epithelialization had occurred.

The program was as follows:

1. Exhibition of Three Specimens of *Bothriocephalus latus* with Brief Report of Cases, L. W. Ladd.

Three specimens of this variety of worm had been seen by the speaker in 11 years while only about 30 cases had been so far reported in the United States. It was contracted from eating infected fish and was very common along the Baltic. The parasite might cause no symptoms although it usually led to anemia, the blood picture resembling that of a primary pernicious anemia. The anemia promptly improved after the worm was expelled. This worm reached the length of from 6 to 40 feet and its segments were somewhat wider than those of *Taenia saginata*, a common variety. *Taenia solium* was a much shorter worm and he had seen none here in Cleveland. The segments of these two latter varieties were very similar and to distinguish them it was necessary to have the

head. Of the three patients from which these specimens of *Bothriocephalus latus* were obtained, two were of foreign birth and the third was a child of foreign born parents.

2. A Few Cases of Thoracic Surgery, F. E. Bunts. (Appearing in full on page 910.)

3. The Application of Roentgen Methods in the Study of Intrathoracic Diseases, G. F. Thomas. (Appearing in full on page 976.)

W. H. Merriam referred to a case with pain in the testicle and cough, the physical findings in the lungs and the evidences of disease as shown by the radiograph were identical.

F. E. Bunts said that the aid furnished by radiographs in clearing up the diagnosis was invaluable. His own views, without exception, were that when pus was discovered in the thorax part of one rib should be resected. If this were done early it would often save resecting two, three or more ribs later on.

G. F. Thomas said that the radiographic findings would indicate the presence and the nature of a lesion in the lung frequently before the physical signs became recognizable. However, a comparative study of this kind to determine which method would first indicate the presence of a lesion, was not of especial importance, since in the deduction of a correct diagnosis, all information obtainable from all methods should be obtained and properly correlated. In bronchitis the x-ray would not show anything more than slight density along the bronchi, whereas in early tuberculosis, the additional evidence of mottling would be present.

4. Acidosis, C. H. Lenhart. (Appearing in full on page 1013.)

J. P. Sawyer said that the treatment of acidosis in diabetes by neutralization so far as possible with alkali, sometimes seemed to be helpful. These acid bodies were due to interference with the metabolism of carbohydrate and the indication was therefore to attempt to improve the assimilation limit and use of carbohydrates. Cases with impending coma could often be greatly improved by proper treatment. If the digestion were well taken care of one might often feed quantities of carbohydrate to diabetics, as such treatment seemed to raise the assimilation limit.

5. Report on Cases of Gastric Hemorrhages, F. C. Herrick. (Appearing in full on page 969.)

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#### ACADEMY MEETING.

The eighty-sixth regular meeting of the Academy was held at the Cleveland Medical Library, Friday, November 17, the President, W. B. Laffer in the chair.

The minutes of the former meeting were read and also a report of the Council meeting at which the recommendations of the Committee on Medical Practice had been endorsed. (P. 957, November issue.) These recommendations were read so that they might be voted upon at the December meeting.

The following nominations for officers for 1912 were then made from the floor: for President, R. E. Skeel and J. M. Ingersoll; for Vice-President, W. G. Stern and F. W. Davis; for Secretary-Treasurer, S. H. Monson and H. G. Sloan; for Trustees, W. H. Merriam, R. K. Updegraff, A. F. Spurney and H. L. Sanford.

W. H. Humiston showed a kidney containing a number of calculi. The patient had formerly undergone an operation for retroposition of the uterus, cystic ovaries and catarrhal appendicitis. She was 48 years old and had had 19 pregnancies with 17 living children.

The program was as follows:



1. Differential Diagnosis and Treatment of Acute Auditory Vertigo, so-called Meniere's Disease, Eugene A. Crockett, Boston. (To appear in full in the Journal.)

2. A Plea for Greater Care in the Treatment of the Chronic Patient, Joel E. Goldthwait, Boston.

N. Rosewater, in the discussion, emphasized the importance of giving relief as early as possible to those patients with enteroptosis. Immediate relief could oftentimes be obtained by the use of abdominal bandages. Later these could be discarded when the general measures had had an opportunity of improving the patient's condition.

F. C. Herrick asked whether there were any individual ptoses that, in the opinion of the speaker, required surgical treatment.

B. E. Sager said that goiter might have a very marked influence upon the general condition in arthritic and in neurasthenic cases. In the treatment of goiter cases with the ultra-violet rays he had been much impressed with the improvement not only of the goiter but also of arthritic and other symptoms.

G. I. Bauman laid stress upon the value of a complete physical examination and quoted cases in which the wrong diagnosis was due simply to the lack of a thorough investigation. In patients with faulty posture in standing, digestive symptoms were apt to occur and it was remarkable how these were improved when the poise was corrected. He wished to ask whether the speaker advised support or exercise in the management of these cases.

M. Coplan asked what importance, if any, the ductless gland bore to these cases.

J. P. Sawyer emphasized the importance of a thorough routine examination with a clear view as to the importance of physiological processes. It would be an excellent plan if specialists in different fields would cooperate in the investigation of obscure cases.

J. Goldthwait, in concluding, stated that many symptoms in chronic diseases were due to insufficient or impaired action of the ductless glands but that this faulty action might in turn be due to impaired circulation or nervous influence, e. g., pressure on the sympathetic system. He had seen thyroid symptoms, caused by the pressure of supporting apparatus upon the epigastric region, relieved by removing this pressure and reapplying it so as to support the lower abdomen. Probably a good many cases of individual ptoses required operative case but every one of these should be examined most carefully to see if other measures would not be sufficient and to make sure that the operation, by abnormally fixing an otherwise movable part, might not do more harm than good. It was highly important that surgery of this variety be not done blindly. In deciding as to the employment of exercise or support in the treatment of the given case, only general rules should be laid down. If the structure were "tired out" support, such as rest in bed, was evidently indicated at first. Later, exercise could be gradually instituted and by degrees the support diminished while the exercise was increased.

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## OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION.

The fifty-fifth regular meeting of this section was held at the Cleveland Medical Library, Friday, November 24, S. H. Large in the chair.

The program was as follows:

1. Additional Notes on a Patient with High Astigmatism, B. L. Millikin.

2. Simulation of Amblyopia Among Children, Leo Wolfenstein. (To appear in full in the Journal.)

3. Report of a Case of Herpes Zoster of the Larynx and Pharynx. (Appearing in full on page 1030.)

The following officers were elected for 1912: Chairman, S. H. Large; Secretary, Leo Wolfenstein.

### CLINICAL AND PATHOLOGICAL SECTION.

The eighty-first regular meeting was held at the Cleveland Medical Library, Friday, December 1, 1911, R. K. Updegraff in the chair.

W. G. Stern showed a girl with hereditary spastic paraplegia. Seven years ago the tendo Achillis had been divided on account of a contracture but the deformity had now returned and there was also spastic condition of the flexors of the fingers and of the arm. She also walked with a slight swing to the body; she could not pick up objects from the floor and could not rise from the lying to the sitting posture. The family history was of interest as two of her three brothers and sisters presented the same condition, also her father and his two brothers and one sister, also the father's mother and her sister and the father's grandfather. The prognosis in such cases was distinctly unfavorable.

J. G. Spenser reported a case of gall stones in which the patient took a proprietary oily substance supposed to cause the passage of the stones. Some 30 supposed gall stones were passed but on examination these crystalline masses of greenish tinge readily dissolved in boiling water and were evidently nothing but soapy concretions.

W. H. Merriam stated that a patient of his had had a similar experience, the gall stones being really soapy concretions.

F. E. Bunts showed a specimen which had passed from the bowel of a patient upon whom he had operated for cholecystitis. The substance was evidently not a gall stone but probably magnesium phosphate.

A. A. Johnson showed a specimen from a case of congenital pulmonary stenosis with malformation of the heart. Both ventricles communicated with the aorta. The right ventricle also communicated with the pulmonary system through a congenitally stenotic pulmonary valvular opening.

The program was as follows:

1. Exhibition of Pathological Specimens, W. T. Howard. The following specimens were shown: 1. A heart from a case of miliary tuberculosis. The valves showed tuberculous granulations, which, on straining, were found to be filled with large numbers of tubercle bacilli. 2. The spleen and liver from a case of splenomegaly associated with cirrhosis of the liver. 3. A kidney from a case of acute hemorrhagic nephritis due to the ingestion of flix mass for tapeworm, soon after which anuria developed and lasted until death occurred, four or five days later. Microscopically active proliferation of the tubular epithelium was found; also numerous small areas of necrosis of irregular shape, which represented areas of infarction due to the closure of the vessels with agglutinative thrombi.

2. Suppuration of the Middle Ear with Some of Its Complications, S. H. Large. (Appearing in full on page 999.)

3. The Examination of Urine for Doubtful Traces of Sugar, J. J. R. Macleod.

The failure of Fehling's solution to detect a small amount of sugar in the urine was pointed out and the use of other reagents was advised. Worm-Müller's solution gave better results as it contained less alkali than Fehling's solution. It consisted of 2.5 c.c. of 2.5% solution of  $\text{CuSO}_4$  to which was added 2.5 c.c. of a solution containing 10 gm. of Rochelle salt dissolved in 100 c.c. of a 4% NaOH solution. Equal



quantities of this solution and of urine were boiled in separate test tubes, allowed to cool for 20 seconds and then the blue solution was added to the urine: the formation of a fine opalescent precipitate showed the presence of sugar. Nylander's test was even better. This solution kept indefinitely and consisted of 4 gm. Rochelle salt and 100 c.c. of 8% NaOH to which, after heating in a water bath, was added 2 gm. bismuth subnitrate and the resulting solution filtered. To 5 c.c. of urine about 0.5 c.c. of this solution was added and the mixture heated in a water bath for 5 minutes. If a grey or black discoloration formed sugar was present. Benedict's test was also very satisfactory and was probably the best test for general use. It was permanent, easily made and its use was simple. It was made by dissolving 17.3 gm. of  $\text{CuSO}_4$  in 100 c.c. of water and pouring slowly into a solution of sodium citrate 173 gm. with 200 gm. sodium carbonate in 700 c.c. water. The volume was then made up to 1000 c.c. If 5 c.c. of this solution, with eight drops of urine added, were boiled for two minutes, a fine precipitate, equally suspended, was formed if pathological amounts of sugar were present.

E. O. Houck asked whether the ingestion of medicinal substances by the patient would interfere with these tests.

I. J. Kerr asked whether Haines' test was reliable and also as to the use of the fermentation test.

J. G. Spenser drew attention to the fact that the presence of albumin in the urine would interfere with some of these tests, especially with the Nylander. His routine procedure was to make three simultaneous tests, Fehling's, Nylander's and phenylhydrazine tests. If there were still any doubt he used the fermentation test. Fehling's, however, was the only quantitative test that we had.

J. J. R. Macleod, in conclusion, said that the only other substances in urine besides dextrose which reacted with Benedict's reagent were homogentistic acid and glycuronic acid. The former was very rarely present, the latter only when aromatic drugs were taken. The fermentation test was not satisfactory if the urine contained only small quantities of sugar. It required the use of pure brewer's yeast; Fleishman's yeast, which was ordinarily used, contained starch and dextrins, which might cause fermentation. He had had no experience with Haines' test. It was, of course, understood that before testing for sugar in urine, protein should be removed. It was not the case that chemists depended only upon Fehling's solution for the quantitative estimation of sugar. Bang some years ago introduced a copper solution containing no fixed alkali but carbonate and sulphocyanates. This newer method of titration was more delicate than those in which Fehling's solution was employed. For ordinary quantitative work, when sugar was above 0.5% the polariscope was most satisfactory.

4 Phenolsulphonophthalein as an Index of Kidney Function, H. L. Sanford. (To appear in full in the Journal.)

5. A Clinical Report on the Newer Methods of Diagnosis of the Upper Urinary Tract, W. E. Lower. (To appear in full in the Journal.)

W. H. Weir asked what results had been obtained with this test in cases of tuberculosis of the kidney. In one such case he had used it and found that the tuberculous kidney excreted the dye earlier and in a larger amount than the presumably sound kidney. The tuberculous kidney, when removed, showed but a small area of tuberculous tissue although numerous tubercle bacilli were present in the urine. Subsequently the remaining kidney excreted urine containing a large amount of albumin and many casts, showing that possibly the tuberculous kidney had really more sound tissue than the other.

F. C. Herrick asked whether the dye was excreted by the glomeruli or from the tubular epithelium. He understood that no one substance

would test the functional activity of both of these structures and that it was considered by many that more accurate results would be secured by careful study of the excretion of these substance which the kidney normally handled than of dyes or any other substance to which it was unaccustomed.

S. L. Bernstein referred to a patient who had had nephrectomy one year ago for renal calculus. A radiograph now showed a stone in the remaining kidney. The urine was normal and the patient's health was good. The question was what should be done? Should the stone be allowed to remain until symptoms developed or should it be removed now while the patient's condition was good?

H. L. Sanford said that the result in W. H. Weir's case might have been due to reflex anuria of the healthy kidney, due to the introduction of the ureteral catheter. As to the use of substances to which the kidney was unaccustomed in testing its function, in making various tests in the same patient with different substances, including indigocarmin, methyl blue, urea, etc., and by cryoscopy, it was found that these different tests usually agreed very closely showing that considerable reliance could be placed upon them. An ordinary examination of the urine might give very little evidence as to the condition of the kidney. In many cases they had found almost normal urine showing but a trace of albumin and but few cases, but with a markedly low excretion of phenolphthalein; subsequent autopsies of some of these cases showed marked disease of the kidney.

W. E. Lower laid great stress upon the value of the thalein test especially in prostatic cases. He thought that the increased excretion of the dye following the institution of drainage in these cases demonstrated, in a measure, the improved chances of the patient to stand the operation.

The election of officers for the ensuing year resulted as follows: Chairman, H. L. Sanford; Vice-Chairman, A. L. Storey; Secretary, C. L. Cummer.

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### COUNCIL MEETING.

The Council of the Academy of Medicine of Cleveland met Wednesday, November 29, 1911.

The following were elected to active membership: C. W. Wyckoff, A. J. Pearse, B. L. Spitzig, W. G. Zantiny, G. B. Fliedner, J. T. Smith, Jr., J. D. McAfee, R. A. Bruntnall, H. A. Berkes and A. G. Schlink. To non-resident membership: C. A. LaMont, Canton, Ohio. To associate membership: Varney E. Barnes, D. D. S.

Letters from R. E. Skeel and J. M. Ingersoll declining the nomination for President were read.

It was voted that R. E. Skeel and W. B. Laffer and a third member to be selected by the two, constitute a committee to canvass the field for presidential nominees. C. A. Weber was selected as the third member.

It was voted that the Chair appoint a committee of three to act with a committee from the Chemical Society to study the city water problem. J. E. Tuckerman (Chairman), O. T. Schultz and J. G. Spenser were appointed.

At the request of the Veterinary Section it was voted that the Secretary communicate with County Prosecutor Cline in regard to enforcing the Veterinary Laws.

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### Book Reviews.

Diseases of Infants and Children. By Henry Dwight Chapin, A. M., M. D., Professor of Diseases of Children, New York Post-Graduate



School and Hospital, etc., and Godfrey Roger Pisek, M. D., Professor of Diseases of Children, University of Vermont, etc. Second edition, revised, with 181 illustrations and 11 colored plates. William Wood & Company. New York City. Price \$4.00 net.

This textbook is an extremely concise and well worked out edition of some 617 pages. It is divided into 17 sections with 45 chapters. It contains much more than is customary in such books in the way of physical laboratory methods and the chapter on feeding is especially well done. It is an unusual pleasure to see some space devoted to the diet of the child after weaning, as it is generally slurred over with a few lines. The illustrations are mostly original and add much to the usefulness of the book. It can well be recommended to the general practitioner or to the student as the authors have at least written their book from their own observation and experience and in contradistinction to a host of other textbooks on children recently published, it is not a résumé of German literature or a compilation of Holt. J. M.

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The Bacillus of Long Life. A Manual of the Preparation and Souring of Milk for Dietary Purposes, Together with an Historical Account of the Use of Fermented Milks, from the Earliest Times to the Present Day, and Their Wonderful Effect in the Prolonging of Human Existence. By Loudon M. Douglas, F. R. S. E. With 62 illustrations. G. P. Putnam's Sons, New York and London.

This is an extremely readable book summarizing the information about the various sour milks which have come up so prominently before the public since the publication of Metchnikoff's work on the relation of sour milk to longevity. Beginning with a brief history of the use of these fermented beverages in various countries, the different kinds, and the special methods of preparation are considered. In relation to the actual therapeutic use the indications are considered, dealing particularly with the signs of absorption of putrefactive material from the intestine, and the merit is set down to the special organisms introduced with these milks. In the whole matter one must keep in mind the work of Kendall, referred to in a recent editorial, and his contention that it is the *sugar* which changes the flora rather than the actual introduction of new varieties of organisms receives confirmation from the statements in the book that mare's milk is the best for the making of kumyss on account of containing a large proportion of sugar of milk. The illustrations are good and are explanatory of the text, the whole book is a good popular review of the subject, and gave the reviewer much information of a useful nature. R. G. P.

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Diseases of the Stomach. A Textbook for Practitioners and Students. By Max Einhorn, M. D., Professor of Clinical Medicine at the New York Post-Graduate Medical School and Hospital; Visiting Physician to the German Hospital. Fifth revised edition. William Wood & Co., N. Y. 531 pps., 112 figures. Price \$3.50.

The author has dedicated this most excellent work to his friend and teacher, C. A. Ewald of Berlin, of whose teaching he is a most worthy authority in this country. The student has far outstripped his teacher we believe in the technic of gastric manipulations and for those who seek expertness in this line we know of no better authority. Whether the practical or scientific value of some of the author's numerous ingenious instruments is not overestimated and does not tend to increase the rather large group of nervous affections of the stomach as the author presents them in Chap. XIII, is an open question. Chap. IX (16 pp.), Anatomy and Physiology, is rather short when so much of value has been produced in the past few years. Chap. II (110 pp.), Methods of Examination,

contains excellent historical sketches, technic, chemical analyses and references. Chap. III (28 pp.), Diet, contains excellent working tables. Chap. IV (26 pp.), Local Treatment of the Stomach, describes the author's numerous methods from lavage and the use of electricity to a special powder blower of questionable value. It is the succeeding chapters that we believe justify Einhorn's well merited reputation. Chaps. V to VIII inclusive (137 pp.), deal with gastric disease in fact and we are pleased to see the author accept the advanced surgical teaching regarding chronic ulcer (p. 265). His discussion and treatment of the catarrhs, ulcers and cancer is a working model. Chaps. IX, XI and XIII (147 pp.), present the functional and nervous conditions of the stomach under troublesome names and of mostly unknown causes. Chap. X (14 pp.), Achylia Gastrica, we believe has wandered from its proper classification though well dealt with. Chap. XII (20 pp.) presents Abnormal Conditions with Reference to the Size, Shape and Position of the Stomach. Chap. XIV (14 pp.) takes up the much-slighted-by-gastrologists subject of Conditions of the Stomach in Diseases of Other Organs and we believe should be more thoroughly worked over. The book is a scholarly production, is replete with bibliographic reference and demands a place in the library of the student and practitioner.

F. C. H.

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Diseases of the Stomach. With Special Reference to Treatment. By Charles D. Aaron, Sc. D., M. D., Professor of Gastro-enterology and Adjunct Professor of Dietetics in the Detroit College of Medicine; Professor of Diseases of the Stomach and Intestines in the Detroit Post-Graduate School of Medicine, etc. Octavo, 555 pages, with 42 illustrations and 21 plates. Cloth, \$4.75, net. Lea & Febiger, Philadelphia and New York, 1911.

The appearance in recent months of several textbooks on digestive disturbances is an indication of growing interest in the treatment of these disorders, based on diagnosis by the methods of recent development, concerning which the clinical experience of specialists has established sufficiently the limitations under which they may be relied upon in ordinary practice. As one of the early workers in this field Dr. Aaron has added to an admirable training the ripening of judgment by an extended experience in active practice. As stated in the author's preface the intention was to make the work "practical and therapeutic." In this attempt he has succeeded admirably in giving the methods he uses in diagnosis, and the measures he relies upon for results.

The text is written in discursive style which makes decidedly for ease in reading and readiness in reference. It may be questioned if something of accuracy is not lost, by purposely omitting the limitations of ideas, themselves conveyed the more readily by the suppression of possibly confusing restrictions as to their application. Especially to be recommended are the writer's presentation of the importance of physical measures, his caution as to the unnecessary and injurious operations towards which professional impatience has set so strongly, and the prominence he so justly gives to the nervous conditions of the patient as influencing greatly both subjective and objective phenomena.

The book itself is a good example of the publisher's art and presents in clear form the material the author has contributed. In first editions errors occasionally creep in and escape the proof reader. Such an instance is that in the description of the test for total acidity of the stomach contents, where it is advised to multiply the c. c. obtained in using phenolphthalein indicator by the factor for free hydrochloric acid. Succeeding editions will no doubt eliminate these minor slips, and the book is heartily commended for its usually clear and practical presentation of the subject.



It is hoped by the reviewer that Dr. Aaron will, in forthcoming editions, lay a little more emphasis on his personally preferred methods, adding to his descriptions the advantage of his great experience.

J. P. S.

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**Textbook of Embryology.** By Frederick R. Bailey, A. M., M. D. and Adam M. Miller, A. M. Second edition, XVI plus 672 pages, 515 illustrations. Price, \$4.50 net. New York, William Wood & Co., 1911.

The second edition does not differ greatly from the first edition published two years ago. There is some new matter, some parts have been rewritten and some of the small errors have been corrected. This book is being used extensively in the better medical schools of the country and has given satisfaction. In the opinion of the reviewer it is the best book on this subject in English for students; and for the practitioner, as a reference book, it is the best of the compact works on the subject.

F. C. W.

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**A Textbook of Medical Diagnosis.** By James M. Anders, M. D., and L. Napoleon Boston, M. D. Octavo of 1195 pages, with 443 illustrations, 17 in colors. Cloth, \$6.00 net; half morocco, \$7.50 net. W. B. Saunders Co., Philadelphia and London. 1911.

This book is a clear concise compilation of diagnosis in medicine. The arrangement of the subject matter is logical. The headings are well arranged. Under each condition a paragraph on "Laboratory Diagnosis" is found, which will be useful in pointing out the chemical, serological or bacteriological aids to the diagnosis of certain diseased states. The illustrations are many and good, and the whole makes an excellent cut and dried book of reference for points in diagnosis.

R. D.

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**Surgical Applied Anatomy.** By Sir Frederick Treves, F. R. C. S., Sergeant-Surgeon to H. M. the King, Late Lecturer on Anatomy at the London Hospital. New (6th) edition, thoroughly revised. Pocket size, 12mo, 676 pages, 137 illustrations, of which many are in colors. Cloth, red edges, \$2.50, net. Lea & Febiger, Philadelphia and New York. 1911.

Treves' Surgical Applied Anatomy has been a favorite with students for many years; in the recent edition revised by Keith, considerable new matter appears, and the work is brought up to date. The editor has "retained the spirit, form and size given to it by its distinguished author." The additions relate especially to the glands of internal secretion, to the anatomy of the abdomen, lymphatics and to data obtained from x ray examinations. Thirty-five new illustrations have been added.

The volume contains a vast amount of practical information, and its convenient size is a factor which has contributed to its extensive use. As Treves states in the preface to the first edition, he endeavored to make the principle of the book the principle that underlies Mr. Hilton's classic lectures on "Rest and Pain." Some knowledge of descriptive anatomy is necessary for the medical student before he can use the book to the best advantage and therefore it is during the years that clinical studies are being pursued that the book will be most valuable; the active practitioner also will find its perusal of interest and aid.

C. A. H.

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**Orthopedic Surgery.** By Edward H. Bradford, M. D., Surgeon to the Boston Children's Hospital, etc., and Robert W. Lovett, M. D., Associate Surgeon to the Boston Children's Hospital. Wm. Wood & Co., New York.

Those interested in orthopedic surgery will be glad to add this book to their library. It is one of the few good textbooks that we have on the subject, and this edition has been thoroughly revised, many new illustrations having been added. Those chapters dealing with tuberculosis of the spine and hip are especially interesting, as well as those dealing with infantile paralysis and scoliosis. There is a tendency to give the authors' ideas as to treatment, very little stress being laid upon methods other than those used at the Children's Hospital of Boston. As the authors have been connected with this hospital for the last 30 years, the methods now used there in the different diseases are those that the authors have found most serviceable in their orthopedic work. This makes the book very much more valuable because it contains what these men, of known standard in the profession, consider to be the best course to follow in these diseases, and it is not a résumé of all the work done on these different deformities in the last 25 years. G. N. M.

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Case Histories in Neurology. A Selection of Histories Setting Forth the Diagnosis, Treatment and Postmortem Findings in Nervous Disease. By E. W. Taylor, A. M., M. D., Instructor in Neurology, Harvard Medical School, etc. W. M. Leonard, Publisher, Boston.

This extremely well arranged volume will prove of distinct value to all students of clinical medicine. It deals exclusively with case histories, i. e., the symptomatology, diagnosis, treatment and pathological findings in the more common disorders of the nervous system. These are presented on the principle outlined by Prof. Cannon and at present practiced by most Boston teachers of medicine. The reviewer has nothing but praise for this concise and exceedingly practical work.

H. D. D.

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What Shall I Eat? A Manual of Rational Feeding. By Dr. F. X. Gouraud, formerly Chief of the Laboratory of the Medical Faculty of Paris. With a preface by Prof. Armand Gautier, of Paris. Only authorized translation into the English language by Francis J. Rebman. With a glossary containing definitions of the principal terms, and an index of diseases referred to in the text. Rebman Company, New York. Price, cloth \$1.50.

The reviewer's family, while on a summer vacation, found this extremely interesting reading, which speaks well for its popular appeal. To the medical man, the systematic arrangement, the discussion of the nature of the various foods and the reactions produced by them on the digestive functions, on assimilation, on the secretions and on the eliminating apparatus, is very satisfactory. The reviewer got special benefit from a correction of his preconceived or early imbibed notions as to the high nutritive properties of meats, and from the presentation of the differences in inorganic salts in many similar vegetables and fruits. The author's views seem well balanced and free from fads and fancies, notably on the subjects of vegetarianism and the alcoholic beverages.

The glossary supplied by the translator, seems to have an unpardonably large number of errors, as would also seem true of the text, when a special list of 14 errata has to accompany the title page. Among incomplete or misleading definitions in the glossary, may be mentioned those for atheroma, catabolism and disassimilation, diabetes, oxaluria and uropoiesis. And both in the text and the glossary, the conception of the old time chemical phrase, ternary bodies, seems totally misunderstood W. O. O.

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Collected Papers by the Staff of St. Mary's Hospital (Mayo Clinic) for 1910. Octavo of 633 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, \$5.50 net.



The second volume of the Collected Papers of the Staff of St. Mary's Hospital (Mayo Clinic) continues the excellent impression made by the first one. There are papers on diagnosis, therapeutics and operative technic with excellent illustrations of the subject matter in the text. Wealth of material at the Mayo Clinic gives an especial value to the statistics which are published by these men. A wide range of surgical subjects is covered and special attention is paid to some of the most recent refinements in diagnosis. One of the most interesting chapters in the volume is that written by W. J. Mayo entitled "Notes on Italian Surgery." In this chapter Dr. Mayo has given an extremely interesting description of his observations made at the different surgical clinics in Italy during a recent visit to that country.

R. H. B.

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The Mechanism of Life. By Dr. Stéphane Leduc. Translated by W. Deane Butcher, XV 172 pp., 64 illustrations. Rebman Co., New York.

This book contains in the earlier chapters a brief but excellent review of the main facts of physical chemistry. This is followed by description of the author's experimental work in physical chemistry in producing structures which stimulate those found in living plants and animals. The results obtained are most striking.

From this basis, the author presents a speculative discussion of the origin of life and the relation of organic to inorganic material.

This argument is for spontaneous generation through "osmotic growth." While this conclusion may not appeal to us and appear as heterodox, yet the work that the author has done, makes his ideas worthy of attention. The style is clear and pleasing and the book make most interesting reading.

F. C. W.

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The Physician's Visiting List for 1912. P. Blakiston's Son & Co., Philadelphia.

This convenient little visiting list is obtainable in a variety of styles, for from 25 to 100 patients per day or week, the larger ones being printed in two volumes. A perpetual edition, without dates, as well as a monthly edition are also printed. Blank pages for all the various details of practice are provided and in addition a large amount of condensed information including a dose table, incompatibilities, weights and measures, antidotes for poisons, etc.

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### ACKNOWLEDGMENTS.

Progressive Medicine. Vol. XIII, No. 4, 1911. Edited by H. A. Hare, M. D. and L. P. Appleman, M. D. Lea & Febiger, Philadelphia and New York.

The Origin of Life. By H. Charlton Bastian, M. D., F. R. S. With 10 plates, containing numerous illustrations from photomicrographs. G. P. Putnam's Sons, New York and London.

Scientific Features of Modern Medicine. By Frederic S. Lee, Ph. D., Dalton Professor of Physiology, Columbia University. The Columbia University Press. Lemcke & Buechner, Agents, New York City, 1911.

Annual Report of the Smithsonian Institute for 1910.

Public Health and Marine-Hospital Service of the United States: Reprint from Public Health Reports—No. 66. Public Health Reports, Vol. XXVI, No. 46.

Preliminary Report of Committee B of The American Institute of Criminal Law and Criminology.

Reprints by: Wm. C. K. Berlin, Denver, Colo.; Eugene Underhill, Philadelphia, Pa.; Thomas A. Woodruff, Chicago, Ill.; Sam Goldstein, New York; Lewis H. Adler, Jr., Philadelphia, Pa.

### Correspondence.

## SECOND ANNUAL SESSION OF THE CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

DR. KELLEY GIVES AN ACCOUNT OF THE MEETING.

### Editor Cleveland Medical Journal:

The second annual session, which was held in Philadelphia undertook a gigantic task if it was intended to outdo the first session, held in Chicago last year. Whether such was the intention, no matter, the program was sufficiently ambitious and attractive. It extended from Tuesday, Nov. 7, to Friday, Nov. 17, with surgical clinics and demonstrations filling the entire days and literary sessions the evenings, all but Sunday. Headquarters were at the Bellvue-Stratford Hotel, where the schedules for all the clinics were posted on blackboards; and printed programs issued each evening for the following day. As an example of a daily program, choosing at random, I will present that for Wednesday, Nov. 8.

Jefferson Hospital: E. E. Montgomery, 9 to 11 surgical treatment of prolapsus. B. B. Bland, 11, Fulguration for carcinoma of cervix uteri. H. R. Loux, 11 to 1, prostatectomy and suprapubic cystotomy (2 cases). J. Chalmers Da Costa, 1, surgical clinic. S. MacCuen Smith, 1, Acute mastoiditis, a case for simple operation. W. F. Manges, 1, x-ray clinic. W. M. Sweet, 2:30, injuries to the eyeball, with demonstration of localizing apparatus for foreign bodies. E. P. Davis, 4, obstetric clinic.

German Hospital: John B. Deaver, 12:30 to 5, fracture of the patella. Prostatic hypertrophy. Chronic appendicitis. Chronic pancreatitis. Cholelithiasis. Left inguinal hernia. Chronic appendicitis. Cystic goiter. Umbilical hernia. Bilateral inguinal hernia. Incisional hernia. Appendiceal sinus. Infected knee.

Gynecean Hospital: J. M. Baldy, 10, exploratory laparotomy for tubal trouble. Appendix and gall-bladder. Abdominal section for pelvic inflammatory diseases. Tumor of abdominal wall and plastic vaginal work. Plastic work. George W. Outerbridge, demonstration of specimens removed at each operation and other specimens bearing on cases of the day.

Pennsylvania Hospital: John H. Gibbon, 11, inguinal hernia. Umbilical hernia. Double inguinal hernia, recurrent on one side. Umbilical hernia. Repair of perineum. Excision of hemorrhoids. P. N. K. Schwenk, 2, excision of cataracts.

Philadelphia General Hospital: G. E. deSchweinitz and E. A. Shumway, 4 to 5, cataract extraction. Iridectomy. Excision of the lacrymal sac. Squint operation. W. Joseph Hearn, 11 to 1, surgical clinic; Ventral hernia. Gallstones. Septic arthritis of knee-joint. Osteomyelitis. Tuberculous glands of the neck.

Polyclinic: W. R. Nicholson, 9, abdominal section. J. H. Jopson, 11, Bevan operation for undescended testicle and hernia. Walter Roberts, 2, mastoid operation. B. F. Baer, 3, hysterectomy. Ralph Roberts, 4, demonstration in operative surgery of the ear and mastoid (laboratory).

St. Joseph's Hospital: F. Hurst Maier, 11, abdominal section. Extra-uterine pregnancy. Plastic work on perineum and cervix. Abdominal section for retrodisplacement.

Jewish Hospital: J. C. Knipe, 2, skin grafting of orbit. Operation



for cataract. A. W. Watson, 3 to 4, operations for adenoids and hypertrophied tonsils. Deflected nasal septum.

Methodist Episcopal Hospital: J. T. Rugh, 11 to 1, operation for flat foot. Operation for congenital spastic diplegia. L. J. Hammond, 12:30 to 2, cleft palate and harelip. Gall-bladder drainage for interstitial pancreatitis. Congenital anterior displacement of head of radius. Neurologic features and especially the electrical reaction will be explained by James Hendrie Lloyd. Femoral herniotomy.

Medico-Chirurgical Hospital: W. L. Rodman, 9 to 1, surgery of the mammary gland. Radical operation for carcinoma; with exhibition of cases operated upon since 1898. Plastic resection for benign neoplasms; with exhibition of cases operated upon since 1905. Surgical pathology of mammary tumors, with opportunity to examine gross specimens and slides.

Delancey Hospital: J. D. Farrar, 11, removal of tuberculous glands of the neck.

West Philadelphia General Homeopathic Hospital: G. W. MacKenzie, 3 to 5, mastoid operation. Demonstration of Bexold and labyrinth operations.

Howard Hospital: Alfred C. Wood, 12:30, double inguinal hernia. Double bowlegs. Hemorrhoids.

University Hospital: Charles H. Frazier, 10, Salvarsan injection. Herniorrhaphy. Exploratory laparotomy. Craniotomy. Wiring of thoracic aneurysm. Damon B. Pfeiffer, 11, pancreatic lymphangitis. Gynecological amphitheater. B. M. Anspach, 10, prolapsus uteri. Dilatation and curettement for sterility. Orthopedic amphitheater. G. G. Davis, 11, operations for infantile paralysis—submalleolar section of the foot for calcaneocavus and transplanting of the fascia lata for external rotation. Bloodless reposition of congenital luxation of the hip. Obstetrical amphitheater. Barton Cooke Hirst, 11, operations for retroversio uteri. Cocygectomy. Panhysterectomy. Cysts of labia minora. Salpingoöphorectomy. Appendectomy. Trachelorrhaphy. Suspension of bladder. Hegar operation. Cæsarean section: Cong. vera, 7.5 cm.; labor to be induced twelve hours ahead, if no engagement (which is unlikely). General surgical amphitheater. George P. Muller, 12, general surgical operations. Orthopedic amphitheater. William G. Merrill, 2, demonstration of an apparatus for the treatment of sacro-iliac sprain. Medical laboratory. John Speese, 2, Surgical pathology of mammary cysts and tumors. Gynecological amphitheater. C. P. Grayson, 2, diseased faucial tonsils and their removal. General surgical amphitheater. A. A. Uhle, 2, intravenous administration of salvarsan. B. A. Thomas, 3, demonstration of chromo-ureteroscopy. Medical laboratory. John G. Clark, 4, lantern demonstration: Anatomic and physiologic basis of pathological uterine bleeding. J. H. Laird, 2, Wassermann reaction.

Hahnemann Hospital: W. B. and G. A. Van Lennep, J. D. Elliott and C. A. Bigler, Jr., 3, surgical clinic: Appendectomy. Gall-bladder exploration. Stone in the bladder. Prostatectomy. Femoral hernia. Colostomy. Hemorrhoids. Other current clinical material. F. W. Smith and O. Seeley, 3:30, demonstrations: Bronchoscopy and œsophagoscopy. W. C. Hunsicker, 3:30, demonstrations: Cystoscopy and ureteral catheterization. Phenosulphonaphthalein test.

Children's Hospital: F. R. Packard, 5, removal of tumor of larynx by direct laryngoscopy.

Episcopal Hospital: Charles Biedert, 2 to 4, series of operations on tonsils and adenoids. John H. Girvin, 2 to 4, gynecological clinic.

St. Agnes Hospital: G. M. Dorrance, 8:30, harelip. 9:30, hysterectomy. H. A. Wilson, 10:45, osteotomy. John A. McGlinn, 11, abdominal section and plastic. Ectopic pregnancy. Retrodisplacement of

uterus. Renal calculi. J. M. Fisher, 11:30, abdominal section and plastic.

Samaritan Hospital: W. Wayne Babcock, 4, case of spina bifida. Incisional abdominal hernia. Submucous perineorrhaphy. Plastic operation of cervix. Gastroenterostomy. Wilmer Krusen, 12, gynecological clinic. Guthrie McConnell, 2, demonstration of the surgical pathology of malignant tumors. Collier F. Martin, 3, demonstration of results obtained in the treatment of fistula in ano. Double ischio-rectal abscess under spinal anesthesia.

Stetson Hospital: Stephen E. Tracy, 9:30, umbilical hernia. Inflammatory diseases of the pelvis. Carcinoma of the cervix uteri. 12:30, cystoscopic clinic.

Woman's Hospital: Marie K. Formad, 10, double breast amputation. Miriam M. Butt, 2, eye clinic.

Wills Eye Hospital: P. D. Risley, E. L. Zeigler, P. J. Pontius, M. Radcliffe, 2, Regular eye clinic.

Evening Literary Session: Under the auspices of the Philadelphia County Medical Society, in Egyptian Hall, Wanamaker Store, at 8:30 p. m.

Brief address of welcome by Dr. Joseph K. Dixon.

Surgery of the Upper Abdomen: Surgical pathology of the stomach and duodenum, J. F. Binnie, Kansas City, Missouri. Discussion opened by W. L. Rodman, Philadelphia. Surgery of the liver and bile ducts, George Emerson Brewer, New York City. Discussion opened by Robert G. Le Conte, Philadelphia. Surgery of the pancreas, Maurice H. Richardson, Boston, Mass. Discussion opened by John B. Deaver, Philadelphia.

The scientific session is to be followed by an organ recital and reception. Admittance to reception by card only.

The other daily programs were equally full and included similar lists of operations at the hospitals already mentioned, and also the Hospital of the Woman's Medical College, The Children's Homeopathic, The Orthopedic, Oncologic, Frederick Douglas, Lying-In-Charity, St. Luke's Homeopathic, Kensington and American Hospitals. The evening literary sessions drew packed houses, a second example of evening program being for Thursday, Nov. 9, as follows—

President's Address: Coordination of Undergraduate and Postgraduate Teaching of Clinical Surgery. Albert J. Ochsner, Chicago.

The Technic and Remote Results of Bloodvessel Anastomoses (lantern demonstration). Alexis Carrell, New York City.

Cancer of the Stomach; its Surgical Cure (lantern demonstration). William J. Mayo, Rochester, Minn.

The scientific session was followed by a reception in honor of the President, A. J. Ochsner, tendered by the surgeons of Philadelphia.

It is a significant fact that one of the evening meetings was devoted entirely to the surgery of childhood.

President Ochsner in his address appreciated the value of the Congress as a postgraduate school of surgery, prophesied for it a great future, praised that spirit of unselfishness which has led some surgeons to open their clinics to professional visitors, and advocated the education in altruism of public and profession to a degree which should make every hospital a school of surgery open to the profession.

I am unable to state the exact number of surgeons registered at the Congress as the list was not open for inspection. Two days before the close of the Congress it was reported at 2500, with more arrivals on each train. They came from far and near, Eastern, Middle and Southern states, Texas and the Pacific coast, Manitoba and Saskatchewan, the Philippines and Turkey, Europe and South America. The U. S. Army and Navy were well represented.



Taken altogether they were as clean-cut, well-posted, keen and studious a lot of men as one could find anywhere.

The early programs conflicted somewhat for those who desired to following a certain line of work but were soon better arranged. Every courtesy was cordially extended to the visitors during the entire session.

The performances of the local men started off a little complacently, with a tendency to talk down to the spectators; but it was not long until they awoke to the situation and began to bring out their best "stunts" and display their best form, and of the whole series of clinics Philadelphia may well be proud. To compare individuals and methods is impossible in this short sketch but one cannot refrain from mentioning the teaching ability of John G. Clark, the excellent demonstrations of John H. Gibbon, and the peculiar technic of J. M. Baldy, the only operator in Philadelphia who persists in working barehanded, and in using silk ligatures in hysterectomy and shows fine results. It was very entertaining to see one well known surgeon search more than an hour for an appendix which he never found; and another operator not widely known but holding an important position begin a thyroidectomy which was completed by his assistant.

W. L. Rodman's wide knowledge of the literature of the subject in hand was always evident.

John B. Deaver duly impressed spectators with his dexterity and drew audiences so large that his stage of action was transferred from the German Hospital to the large amphitheater at the University Hospital.

G. G. Davis did admirable orthopedic work while he kept up an instructive running comment in idiomatic English.

The work of LaPlace gave evidence of his wide and long experience, and LeConte showed to advantage as a surgical craftsman. Anesthesia by intratracheal insufflation, as presented by G. P. Muller, excited considerable interest.

Some were surprised to see H. A. Hare, well known internist, step into the operative arena with wiring of aortic aneurism. But I must desist.

Viewing the entire session as a postgraduate school of surgery, and comparing it with that at Chicago last year, my impression is that this meeting as an exhibition of the highest class of teaching never rose to the lofty height of that displayed at Chicago; and when I attempt to analyze the prevailing methods upon which the cases were demonstrated I believe the weak point lay in a comparative neglect of the history of the cases as related to the diagnosis and the indications.

The officers elected for the ensuing year are, President, Edward Martin of Philadelphia; Vice-President, G. E. Brewer of New York; Franklin Martin of Chicago was reelected Secretary, and Allen B. Kanavel was reelected Treasurer.

No meeting place is yet decided upon. New York seemed most in favor, with Boston and Baltimore to be considered.

SAMUEL W. KELLEY.

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### Medical News.

**Dinner to Dudley P. Allen:** The Cleveland Medical Library Association, on November 27, gave a dinner at the Union Club in honor of Dudley P. Allen, to mark his retirement from active practice. Over one hundred members of the Association were present besides several invited guests from out of town. F. E. Bunts presided as Toastmaster and introduced C. B. Parker, who as President of the Library Association welcomed the guests. J. P. Sawyer gave the address of the evening.

Out of town speakers were George H. Monks of Boston, who gave reminiscences of his study days in Vienna with Dr. Allen, and Jos Ransohoff of Cincinnati who spoke on Dr. Allen's place in surgery in Ohio. Dr. Allen, as the guest of the evening, gave interesting accounts of various phases of his surgical career. At the end of his speech he was presented with a large silver loving cup, by H. C. Sherman who was Chairman of the Dinner Committee.

Among the guests from out of town were George H. Monks, William J. Otis, William Bullard, all of Boston; J. C. Oliver and Jos Ransohoff of Cincinnati; J. C. Bloodgood of Baltimore; C. B. G. de Nancrede of Ann Arbor. The entire affair was a notable success.

**The St. Alexis Alumni Association** met at the Hollenden Hotel Thursday evening, December 7. F. B. Corrigan read a paper and officers were elected for the year.

**The Union Medical Association, Sixth District**, met in the Southern Hotel, Mansfield, Ohio, November 14, 1911. M. J. Lichty gave an interesting paper on Insidious Chronic Appendicitis, How to Prevent the Acute Attack. Albert H. Freiberg, Cincinnati, discussed Orthopedic Indications in Infantile Paralysis.

The following officers were elected for the ensuing year: President, S. A. Cunningham, Marietta; Secy-Treas., J. R. McDowell, Zanesville. The next meeting will be held at Marietta.

**Charles E. de M. Sajous**, of Philadelphia, has accepted the position of Supervising Editor of the New York Medical Journal. The great work of Doctor Sajous in the fields of scientific investigation and medical literature, both in America and Europe, is too well known to need any comment. Our best wishes are extended to Doctor Sajous and we congratulate the New York Medical Journal upon having obtained his valuable services.

**The Tuscarawas County Medical Society** met at Uhrichsville Tuesday, December 5, 1911. The program was as follows: 1. President's Address, W. R. Hosick, Newcomerstown. 2. Blood Pressure, R. W. Shumaker, Canal Dover. 3. A Paper by R. A. Goudy, Newcomerstown.

**Meetings of the Academy of Medicine of Toledo and Lucas County:** A General Meeting of the Academy was held Friday, November 3, 1911. The program consisted of a paper upon Medical Inspection in the Public Schools—Its Aims and Results, by P. B. Brockway. The discussion was opened by W. H. Snyder, C. G. Souder, R. W. Stewart and G. P. Whitwahn.

The Pathological Section met Friday, November 10. The program was as follows: 1. Gunshot Wound of the Thorax followed by Empyema; X-Ray Plates and Presentation of the Patient, H. L. Green. 2. Melanotic Sarcoma of the Choroid, with Presentation of Specimen, F. W. Alter. 3. Cyst of the Thyroglossal Duct, Presentation of Patient, Chas. D. Ury. 4. Some Pathological Conditions of the Gall-Bladder Indicating its Removal, Presentation of Specimens, W. J. Gillette. 5. Case of Complete Transposition of the Viscera. X-Ray Plates and Presentation of Patient, W. J. Stone and H. W. Dachtler.

The Medical Section met Friday, November 17. The program consisted of case reports: 1. Gastric Ulcer: Report of a Case made 40 years ago, today in Bellevue Hospital, Jas. A. Duncan. 2. Huntington's Chorea. 3. Paresis: Case Demonstration. 4. The Causes of Insanity, C. W. Dahlenburg. 5. Symptoms and Diagnosis of Paresis, C. C. Kirk. 6. Pathology and Treatment of Paresis, N. H. Young.

The Surgical Section met November 24. The program consisted of a paper on Carcinoma of the Lip by Dr. Todd and a "Talk Fest" by the Doctors.



**The Endowment Fund of W. R. U. Medical Department:** Official announcement was made the first of December by President Thwing that the special endowment fund of the Medical Department of Western Reserve University now totals \$929,000. There remains to be raised by the president and trustees the sum of \$71,000.

In October of last year, President Thwing publicly announced that Mr. John D. Rockefeller had offered the University \$250,000 upon the condition that \$750,000 be raised by the University not later than December 31, 1911. It was also announced that Mr. H. M. Hanna would give the University \$250,000 as a part of the required amount.

President Thwing now announces that the sum of \$429,000 has since been given. The names of the donors of the additional amounts have not been made public. The public is informed, however, that the gifts have included two subscriptions of \$100,000 each, one subscription of \$50,000, three subscriptions of \$30,000 each, two subscriptions of \$25,000 each, one subscription of \$10,000, five subscriptions of \$5,000 each, and four subscriptions of \$1,000 each.

In announcing the \$429,000 of additional gifts President Thwing said that special efforts will be made by the University to secure at once the balance of \$71,000. It must be raised immediately in order to secure the million-dollar Medical Department additional endowment fund.

President Thwing also announced that the present college year is one of great numerical strength. The total number of men receiving instruction in the Medical School this year is 177.

The freshman class, which is composed entirely of college graduates as required by the high entrance conditions of the school, numbers 47, as compared with 26 last year.

A recent poll of the students according to the place of residence shows that the Cleveland institution is drawing men from every part of the United States, and from foreign countries. Many of the men have come from such nearby states as Pennsylvania, Indiana, Illinois, West Virginia, Michigan and New York. Others have come from Alabama, Kentucky, Minnesota, Kansas, Iowa, Montana, Nebraska, Oklahoma, Utah, South Carolina and from Chili and Japan and other foreign countries.

Among the different collegiate institutions represented in the student body of the Western Reserve School are Amherst, Harvard, Williams, Yale, University of Pennsylvania, Cornell University, University of Illinois, University of Michigan, University of Chicago, University of Kansas, University of Utah, University of Iowa, Notre Dame, Walbash College, University of Indiana, Washington-Jefferson College, Allegheny College, Ohio State University, Ohio University, Miami University, Kenyon College, Dennison University, Marietta College, Oberlin College, University of Cincinnati, University of Wooster, Ohio Wesleyan University, Case School and Adelbert College of Western Reserve University.

#### DEATHS.

Harlan Pomeroy, Cleveland, Ohio, died December 4, aged 58.

Bernhard Krause, Cleveland, Ohio, died November 17, aged 80.

David R. Silver, Sidney, Ohio, died December 6, aged 68.

Jacob Hull, Hicksville, Ohio, died November 14, aged 68.

Philo H. Clark, Ashland, Ohio, died November 28, aged 91.

James M. Weaver, Dayton, Ohio, died November 6, aged 73.

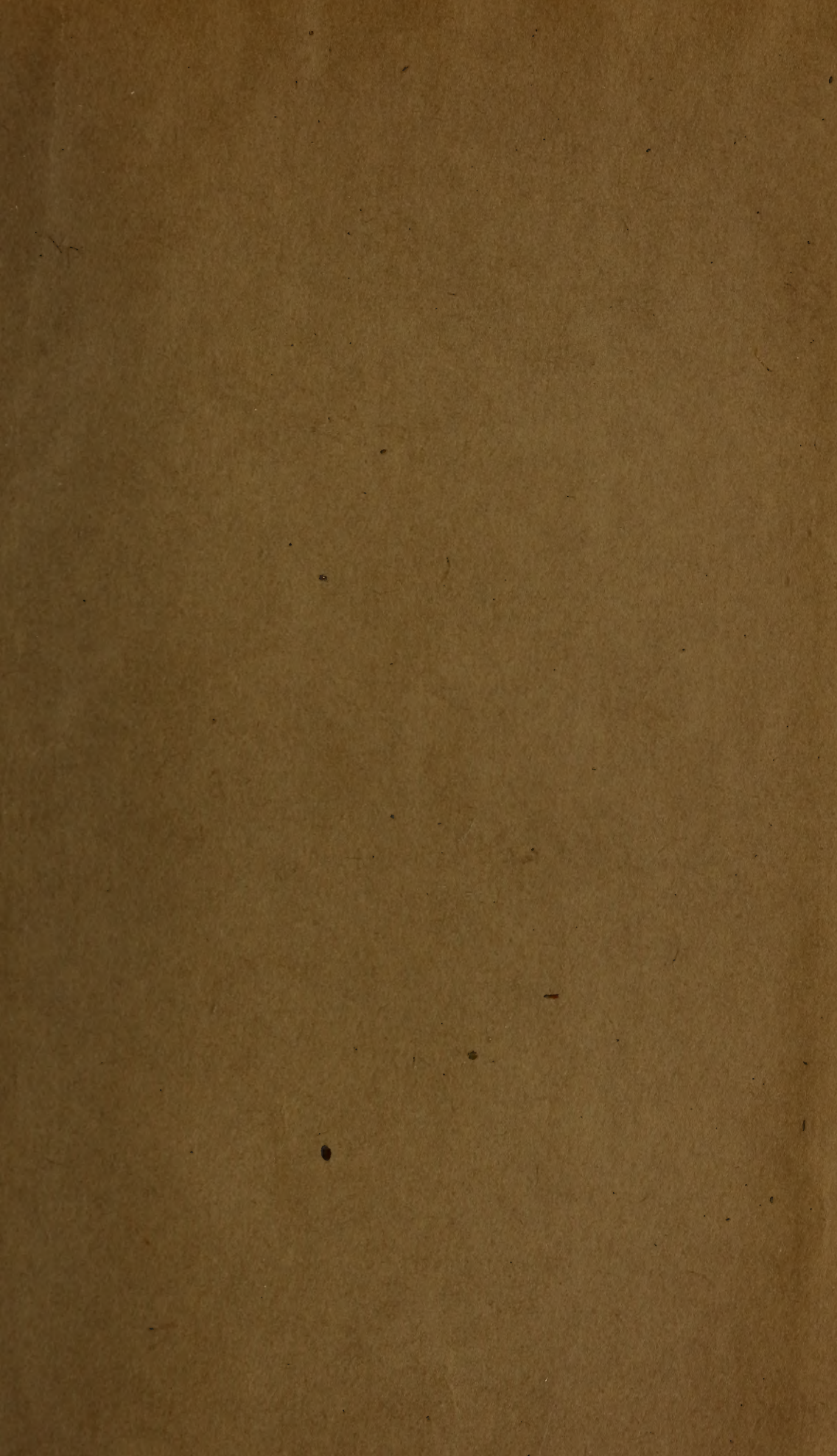
Thomas M. Sabin, Warren, Ohio, died November 6, aged 61.

Horatio S. Brown, Niles, Ohio, died October 29, aged 44.

Frank P. Strayer, Bremen, Ohio, died October 30, aged 56.

Lycurgus A. Bard, Cleveland, Ohio, died November 3, aged 65.

James W. Vander Voort, Harveysburg, Ohio, died November 11.









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